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# **NAVAL POSTGRADUATE SCHOOL**

**MONTEREY, CALIFORNIA**

## **THESIS**

**CLARIFYING RESILIENCE IN THE  
CONTEXT OF HOMELAND SECURITY**

by

Jerry T. Monier, Jr.

March 2013

Thesis Advisor:  
Second Reader:

Christopher Bellavita  
Philip J. Palin

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**CLARIFYING RESILIENCE IN THE CONTEXT OF HOMELAND SECURITY**

Jerry T. Monier, Jr.  
Preparedness Section Chief, Louisiana-Governor's Office of Homeland  
Security and Emergency Preparedness, Baton Rouge, Louisiana  
B.S., University of Phoenix, 2010

Submitted in partial fulfillment of the  
requirements for the degree of

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(HOMELAND SECURITY AND DEFENSE)**

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**NAVAL POSTGRADUATE SCHOOL  
March 2013**

Author: Jerry Monier

Approved by: Christopher Bellavita  
Thesis Advisor

Philip J. Palin  
Second Reader

Harold A. Trinkunas, PhD  
Chair, Department of National Security Affairs

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## **ABSTRACT**

The term resilience is frequently used in the context of homeland security. The definition continues to emerge within the evolving homeland security enterprise. The purpose of this thesis is to clarify the concept of resilience in the context of homeland security. Existing homeland security policies of the federal government of the United States were synthesized with resilience-based research obtained from various sciences. The synthesis of research and policy concluded that resilience is a process of adaptability influenced by complexity, interaction, and experience. In the homeland security context, resilience is a continual process of adaptation based upon a variety of man made, natural, and economic adversities. Resilience is a vision of homeland security rather than a policy of the enterprise. The homeland security practitioner's understanding of resilience is influenced through the clarification, introduction, and application of the concept. Developing a clear understanding of resilience is accomplished through the development of a resilience narrative for the enterprise, the introduction of the concept into new and existing training programs of the homeland security enterprise, and the application of the concept as an approach of the enterprise. The exploration of the homeland security enterprise at the academic and practitioner level requires a directional heading. The concept of resilience recommended by this thesis establishes a directional heading for the homeland security practitioner.



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## TABLE OF CONTENTS

<b>I.</b>	<b>PERSPECTIVES ON RESILIENCE.....</b>	<b>1</b>
A.	A PROBLEM AREA OF RESILIENCE.....	2
B.	RESILIENCE IS...? .....	2
C.	ADDITIONAL QUESTIONS ABOUT RESILIENCE .....	2
D.	METHODOLOGY .....	2
1.	Determination of Appropriate Resources.....	4
2.	Evaluation Criteria .....	5
E.	THE RESEARCH JOURNEY.....	5
<b>II.</b>	<b>A MACRO PERSPECTIVE OF RESILIENCE.....</b>	<b>7</b>
A.	RESILIENCE EXISTS.....	7
B.	THE PERSPECTIVE OF THE U.S. GOVERNMENT TOWARDS RESILIENCE.....	9
C.	MULTIPLE APPROACHES TO RESILIENCE .....	13
D.	THOUGHTS ON MEASURING RESILIENCE .....	14
E.	RESILIENCE REQUIRES ADAPTABILITY .....	14
F.	NAVIGATING THROUGH COMPLEXITY.....	15
G.	A COMMUNITY PERSPECTIVE ON RESILIENCE.....	16
H.	THE STRATEGIC VALUE OF RESILIENCE .....	18
I.	PRELIMINARY CONCLUSIONS ON RESILIENCE .....	19
<b>III.</b>	<b>FEDERAL INITIATIVES AS THE ROUX OF POLICY .....</b>	<b>21</b>
A.	ESTABLISHING A BASE .....	21
B.	STEP 1: THE NATIONAL SECURITY STRATEGY (NSS) .....	22
C.	STEP 2: THE QUADRENNIAL HOMELAND SECURITY REVIEW (QHSR).....	25
1.	The Vision for Homeland Security.....	25
2.	Homeland Security Enterprise .....	25
3.	The Value of the QHSR.....	26
4.	Mission Area 5: Ensuring Resilience to Disasters.....	27
D.	STEP 3: PRESIDENTIAL POLICY DIRECTIVE 8 (PPD-8) .....	30
E.	STEP 4: THE NATIONAL PREPAREDNESS GOAL (NPG) .....	31
F.	STEP 5: THREAT HAZARDS IDENTIFICATION AND RISK ASSESSMENTS (THIRA) .....	34
G.	STEP 6: MEASURING PREPAREDNESS AND RESILIENCE .....	35
1.	Measuring Resilience .....	37
H.	HOMELAND SECURITY ADVISORY COMMITTEE- COMMUNITY RESILIENCE TASK FORCE RECOMMENDATIONS.....	39
I.	CHAPTER SUMMARY.....	41
<b>IV.</b>	<b>INFLUENCES ON RESILIENCE .....</b>	<b>43</b>
A.	LOOKING THROUGH A LENS TO SEE THE FUTURE-FEMA’S STRATEGIC FORESIGHT INITIATIVE .....	44

1.	The Future Through the Dimensions of STEEP .....	45
2.	A Link Between the SFI and the QHSR .....	47
3.	Resilience Might Be Looking Through a Telescope and a Microscope.....	48
B.	THE RELATIONSHIP BETWEEN COMPLEXITY AND RESILIENCE.....	48
C.	RESILIENCE THROUGH THE LENS OF COMPLEX ADAPTIVE SYSTEMS OF SYSTEMS.....	49
D.	RESILIENCE IS INFLUENCED BY ADAPTATION .....	50
1.	Resilience is a Process of Adaptation .....	51
2.	Resilience Is Influenced by Interaction.....	52
E.	RESILIENCE IS INFLUENCED BY THE HISTORY AND “STEELING” OF THE UNITED STATES .....	53
F.	CHAPTER SUMMARY.....	55
V.	APPLYING RESILIENCE IN THE CONTEXT OF HOMELAND SECURITY .....	57
A.	OVERVIEW OF RESEARCH .....	57
B.	WHAT IS RESILIENCE IN THE CONTEXT OF HOMELAND SECURITY? .....	59
1.	Resilience Is a Process of Adaptability Based on a Synthesis of Complexity, Interaction and Experience .....	59
2.	Resilience Is a Process of Adaptability.....	59
3.	Resilience Is a Complex Adaptive System of Systems (CASoS) ....	60
4.	Resilience Is Experienced and Demonstrated in Different Ways..	60
5.	Resilience Is a Vision of the Homeland Security Enterprise.....	61
6.	Evaluating the Conclusion .....	61
C.	OPPORTUNITIES FOR FUTURE RESEARCH .....	63
D.	THE SKETCH OF RESILIENCE .....	64
E.	INTRODUCING RESILIENCE THROUGH A TRANSFER OF ACADEMIC RESEARCH TO PRACTITIONER KNOWLEDGE.....	66
F.	POTENTIAL MODELS OF RESILIENCE BASED COURSES FOR THE PRACTITIONER.....	69
1.	Resilience 101-Online Introduction to Resilience .....	70
a.	<i>Presidential Policy Directive 8 The National Security Strategy.....</i>	71
b.	<i>Threats Hazards Identification and Risk Assessment (THIRA) .....</i>	71
c.	<i>Core Capabilities .....</i>	71
d.	<i>The Resilience Narrative of the Homeland Security Enterprise .....</i>	71
2.	Incorporation of Resilience Training into Existing Courses .....	72
3.	Integrated Resilience Training Course .....	73
G.	CONNECTING THE DOTS.....	75
H.	APPLICATION TO THE HOMELAND SECURITY ENTERPRISE ....	76
	LIST OF REFERENCES.....	79

<b>BIBLIOGRAPHY .....</b>	<b>83</b>
<b>INITIAL DISTRIBUTION LIST .....</b>	<b>87</b>

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## LIST OF TABLES

Table 1.	Ball’s Pragmatic Evaluation Criteria .....	4
Table 2.	Goals and Objectives of Mission Area 5 .....	28
Table 3.	Key Strategic Outcomes of the QHSR.....	29
Table 4.	Core Capabilities identified by the Federal Emergency Management Agency .....	33
Table 5.	Relevant Recommendations from the CRTF.....	40
Table 6.	Emergency Management Drivers Identified in the Strategic Foresight Initiative .....	46
Table 7.	Needs Identified by the Strategic Foresight Initiative .....	47
Table 8.	Academic to Practitioner Cross Walk.....	68
Table 9.	Sroufe’s Implications of Resilience .....	69

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## LIST OF ACRONYMS AND ABBREVIATIONS

CDC	United States Centers for Disease Control and Prevention
CPG	Comprehensive Preparedness Guide
CRTF	Community Resilience Task Force
DHHS	United States Department of Health and Human Services
DHS	United States Department of Homeland Security
DOT	United States Department of Transportation
EMI	Emergency Management Institute
FEMA	Federal Emergency Management Agency
GAO	Government Accountability Office
GOHSEP	Governor's Office of Homeland Security and Emergency Preparedness
IAEM	International Association of Emergency Managers
ICS	Incident Command System
IRTC	Integrated Resilience Training Course
NPG	National Preparedness Goal
NSS	National Security Strategy
PPD-8	Presidential Policy Directive-8
QHSR	Quadrennial Homeland Security Review
SFI	Strategic Foresight Initiative
SPR	State Preparedness Report
THIRA	Threat, Hazard Identification and Risk Assessment
UASI	Urban Area Security Initiative
U.S.	United States
WPA	Works Progress Administration



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## EXECUTIVE SUMMARY

### RESILIENCE IS A PROCESS OF ADAPTABILITY BASED ON A SYNTHESIS OF COMPLEXITY, INTERACTION AND EXPERIENCE

Many outside of Louisiana would consider that gumbo is simply a roux-based dish served with rice. However, when gumbo is discussed in the narrower context of a specific region of Louisiana, gumbo is not just gumbo. In the narrower context, gumbo is influenced by a synthesis of cultural identity, resources, and experiences. The process used to create this synthesis varies from region to region and is influenced by the experiences and interactions of the cook. Resilience in the context of homeland security is similar to a gumbo.

Resilience exists and is viewed from the perspective of a dynamic and continual process of adaptation rather than a specific and singular event.<sup>1</sup> This determination is based on the differences in which citizens respond to the influences of an adverse condition. Those influences vary greatly and include known and unknown systems. Although foresight is important to clarifying resilience in the context of the homeland security enterprise, retrospection plays a critical role in understanding the interactions and experiences of an individual, community, state, and nation.

During smaller disasters, single communities are impacted by catastrophic events. While in larger events, such as Hurricane Katrina and the Mississippi River Flood of 1927, disasters impact a large geographic area encompassing multiple communities and states.<sup>2</sup> Regardless of the scope of the disaster, each event influences the resilience of individuals, communities, and the nation. Collectively, these events have influenced national resilience over the life span of the American enterprise.

---

<sup>1</sup> Michael Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice* (New York, NY: Verlag: Springer, 2011), 463.

<sup>2</sup> Stephen E. Flynn and Council on Foreign Relations, *The Edge of Disaster: Rebuilding a Resilient Nation*, 1st ed. (New York: Random House: in cooperation with the Council on Foreign Relations, 2007), 240.

## **CLARIFYING RESILIENCE IN THE HOMELAND SECURITY CONTEXT**

Clarifying resilience requires an understanding of the concept in the context of the homeland security enterprise. Presently, the application of resilience in the context of homeland security is based upon a broad definition. Bridging the gap between the “what is” and the “how to” of resilience requires a clear definition of the concept. Clarifying resilience is necessary to develop recommendations to address the “how to” of resilience in the homeland security enterprise. The introduction and application of the concept to the practitioner is based on a specific definition. Based upon the findings of this research, the following definition is offered as a means of clarifying the concept of resilience in the context of homeland security.

Resilience is a vision of the homeland security enterprise of the United States that is approached through a process of adaptability based on the complexities, interaction, and experiences of an individual, a community, and a nation.

## **RESILIENCE IS A VISION OF THE HOMELAND SECURITY ENTERPRISE**

The concept of resilience establishes a vision for the homeland security enterprise of the United States. Achieving this vision requires a homeland security approach to strengthen the adaptive capacities of government and the public. Sustaining resilience requires the development of programs and initiatives promoting the enhancement of adaptive capacities. The enhancement of adaptive capacities of local and state governments influences the resilience of individuals and communities. Accomplishing this task requires the enterprise to recognize the importance of foresight, adaptation, interaction, and experience. Introducing the concept of resilience as a vision of homeland security is accomplished by applying the resilience narrative and the development of training for the homeland security practitioner.

## **THE SKETCH OF RESILIENCE**

A sketch is used to describe an object or issue. The sketch is either a drawing or text and allows for future modifications. For purposes of this thesis, the sketch of resilience is a narrative. The narrative clarifies the concept of resilience in the context of homeland security, and offers a frame of reference for the development of future

homeland security policies. The narrative is not final; future research and the application of the recommendations of this thesis will influence modifications to the product.

### **The Resilience Narrative**

*The history of the United States of America contains numerous examples of citizens and communities demonstrating resilience. Throughout the history of this nation, resilience has existed as a continual process of adaptation influenced by a variety of man made, natural, and economic adversities. These adversities have ranged from isolated events to global conflict. Resilience has and continues to exist in this nation.*

*Resilience is a vision of the homeland security enterprise of the United States that consists of a process of adaptation based upon a synthesis of complexity and experience. The concept of adaptation based upon complexity and experience is not new and has been demonstrated from the first explorer to set foot upon the soils of America through the most recent newborn child born in this nation. Resilience is a foundational concept of the homeland security enterprise.*

*The concept of national resilience is a goal of the homeland security enterprise of the United States. Prior to the establishment of the homeland security enterprise, resilience described the purpose of traditional emergency management mitigation projects. In the early years of the homeland security enterprise, the term resilience was used in the context of critical infrastructure protection. Critical infrastructure systems were to be designed or enhanced to withstand significant pressures and rebound from stress. In this context, resilience was observed more from an engineering perspective rather than a social perspective. The need to analyze physical systems for vulnerabilities gave rise to studies in self-organized criticality and preparing for low probability-high consequence events commonly referred to as a Black Swan.<sup>3</sup> The concept of resilience adds purpose to the evolving enterprise known as homeland security.*

*Understanding resilience requires a microscopic view of today, and a telescopic view of the future. Existing homeland security policies of the United States offer a high-level view of resilience. Local and state governments of the United States have the ability to influence resilience through strengthening their capabilities to adapt to adversity. Strengthening this ability depends on the interactions of government, the private sector, communities and the citizen. This perspective combined*

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<sup>3</sup> Taleb, *The Black Swan: The Impact of the Highly Improbable*, 366.

*with a retrospective view of past adversities strengthens the foresight capability of the community. Resilience adds to the development of a vision of the homeland security enterprise.*

*A significant shift in homeland security policy has occurred since the issuance of the National Security Strategy and the Quadrennial Homeland Security Review. These two documents elevated the use of the term resilience to a goal of the homeland security enterprise. Thus, propelling the term into the evolving narrative of the enterprise. The emphasis placed on resilience within the enterprise shifted from a context of critical infrastructure to a broader context of resilience of the whole. The concept of resilience contributes to the evolution of the homeland security enterprise.*

*Resilience has become a “buzz word” of the enterprise. The frequency of the use of the term resilience continues to increase and has migrated from the vernacular of public policy to the vocabulary of the general populace. Resilience is not only used to describe the response and recovery of communities impacted by adversity, but is also used to describe sporting teams who come from behind to win a game. Resilience is about overcoming adversity.*

*Resilience is an approach to navigating through the complexities of the homeland security enterprise of the United States. Foresight, adaptability, interaction and experience will influence the practitioner’s ability to navigate through the enterprise. The practitioner should possess the ability to identify future threats and hazards to their jurisdiction. The practitioner should possess the ability to critically think through and adapt to emerging or active threats to their jurisdiction. The ability to operate in this environment will require the practitioner to consider the influences of their interactions within the jurisdiction and their prior experiences. Homeland security is no longer just about prevention and response. Homeland security has evolved into an approach to a resilient and secure nation influenced by adaptation, complexity, interaction, and experience.*

## **INTRODUCING RESILIENCE IN THE HOMELAND SECURITY CONTEXT TO THE PRACTITIONER**

Clarifying resilience from an academic perspective is only one part to developing an understanding of resilience in the context of homeland security. Presently, the majority of information regarding the application of resilience in the homeland security context resides in the academic realm of the enterprise. Strengthening resilience requires that homeland security practitioners and academics clearly understand the concept. The Strategic Foresight Initiative (SFI) introduces the term foresight capability as a means of

forecasting the future. Psychology-based research suggests that the adaptive capacity of the individual influences resilience. This thesis concludes that resilience be viewed as a complex adaptive system of systems. Therefore, adaptation provides a means to navigate through the complexities of resilience and the homeland security enterprise. However, the evolving homeland security narrative and existing training have yet to include these terms.

## **POTENTIAL MODELS OF RESILIENCE BASED COURSES FOR THE PRACTITIONER**

A review of the Federal Emergency Management Agency's (FEMA) Emergency Management Institute's Catalog of Training Programs determined that minimal resilience based training exists for the homeland security practitioner. A possible reason is a lack of clarity in understanding the role of resilience within the homeland security context. Several options exist to increase the resilience knowledge base of the homeland security practitioner. The first option is the development of an online course that introduces and provides clarity to understanding resilience. The second option is the incorporation of a resilience module into existing training programs sponsored by FEMA and training partners, such as the National Domestic Preparedness Consortium. The third option is the development of an on-site training program available to local jurisdictions. The introduction of this module into existing courses aids in the development of a resilience approach for the jurisdiction's homeland security program. The proposed series of resilience training is designed to expand the knowledge base of the practitioner. Resilience 101 is proposed as an introductory course for the individual. The inclusion of a resilience module into existing homeland security training programs broadens the practitioner's knowledge base from a basic level to a practitioner level. The multi-day course of instruction expands the knowledge base from the practitioner level to a community level.

## **RESILIENCE IS A WAY TO CONNECT THE DOTS OF THE HOMELAND SECURITY ENTERPRISE**

The homeland security enterprise of the United States is best described as a “connect the dots” sheet of a child’s activity book. For purposes of this analogy, each system of the enterprise is represented by a dot on the page. The following examples are a representative sample of potential dots on the homeland security “activity page.” The dots represent food defense, cyber security, biological terrorism, chemical terrorism, radiological terrorism, natural disasters, PPD-8, the National Preparedness Goal, the National Infrastructure Protection Plan, FEMA EMI, public health preparedness grants, homeland security preparedness grants, emergency management preparedness grants, Urban Area Security Initiatives, hazard mitigation grants, hazard mitigation planning, disaster assistance, infrastructure protection, security clearances, agro terrorism, recovery, THIRA, state government, local government, tribal authorities, agencies of the federal government, the community, and the State Preparedness Report. Resilience is mentioned in many of these activities. Current conversations on resilience in each of these activities only relates to the specific topic. Connecting the dots of resilience produces a drawn sketch bringing final focus to the concept of resilience in the context of homeland security.

## **APPLYING THIS CONCEPT OF RESILIENCE TO THE HOMELAND SECURITY ENTERPRISE**

Resilience is a vision of the homeland security enterprise of the United States approached through a process of adaptability based on a synthesis of complexity, interaction, and experience. The approach involves all domains and stakeholders of the enterprise. Clarifying resilience in this context provides the opportunity to focus the homeland security enterprise of the United States.

This research concludes with a final thought on the concept of resilience in the context of homeland security. Resilience is vision of the enterprise. The clarification, introduction, and application of the proposed definition of resilience offer the homeland security practitioner a way to navigate and explore the complexities of the homeland security enterprise.

The need to explore has driven technological advancements in navigational aids for centuries. These advancements have benefited the exploration of the New World by European explorers, the exploration of the sea, and the exploration of space. Improvements to navigational aids build upon the original concepts of the compass. The exploration of the homeland security enterprise at the academic and practitioner level requires a directional heading. The concept of resilience recommended by this thesis establishes a directional heading for the homeland security practitioner.



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## **ACKNOWLEDGMENTS**

Let me first thank my wife Carrie. This journey could not have happened without her support and wisdom. To my daughters, Mary-Katherine and Elizabeth, this journey has been for you. Both of you have encouraged and strengthened my resolve over the past years and opened my eyes to the value of simplicity. Finally, to my parents and in-laws, thank you for your support over the past years. Every time Carrie and I thought we could not juggle any more, you stretched out your hand and offered assistance. The completion of this thesis could not have occurred without the support and love of my family.

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## I. PERSPECTIVES ON RESILIENCE

The intent of this thesis is to explore and clarify the concept of resilience in the context of homeland security. The desired outcome of this research is the clarification of resilience and the development of recommendations to enhance the knowledge base of the homeland security practitioner. As indicated in a Congressional Research Service report, the evolution of the term “homeland security” creates confusion.<sup>4</sup> Although the term resilience shares similar evolutionary issues with homeland security, differences exist between the two terms. For decades, existing sciences defined resilience as an ability to adapt to stress. The concept of resilience was originally introduced in the engineering sciences. In the late 1970s and early 1980s, the concept migrated into the science of psychology. Since then, the term has migrated into areas of evolving research, such as emergency management and homeland security.

In the engineering context, resilience is demonstrated by the following example. The beam exhibits resilience with X amount of pressure placed upon the middle portion of the beam. In terms common to the science of psychology, resilience is applied in the following context. The individual demonstrated resilience from an addiction to alcohol. Differences exist in the application of the term in each example. In the engineering context, the resilience of the beam is based on an ability to bear the weight of other structures. While in the psychology example, individuals demonstrate resilience through their recovery and the development of strategies to prevent or mitigate a relapse.

As the concept of resilience has evolved in the science of psychology, so has the amount of research available to better define or clarify the function of resilience. The science of psychology offers insight into determining what resilience might look like in the homeland security context.

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<sup>4</sup> U.S. Library of Congress, Congressional Research Service, *Defining Homeland Security: Analysis and Congressional Considerations*, by Shawn Reese, CRS Report R42462 (Washington, DC: Office of Congressional Information and Publishing, January 8, 2013).

## **A. A PROBLEM AREA OF RESILIENCE**

The academic requirements of this thesis require the identification of a formal problem statement, followed by a main research question, and then a series of sub-questions designed to guide the research, researcher, and reader along a path that will either validate or refute the original research question. The following information is offered as a means to satisfy these requirements.

## **B. RESILIENCE IS...?**

The introduction of the term resilience into the mainstream vocabulary of the homeland security enterprise of the United States (U.S.) has created a desire to determine what resilience might be within this specific context. This research seeks to clarify the concept of resilience in the homeland security context through the following question. What benefits or contributions to the homeland security enterprise will be obtained through the clarification of resilience?

## **C. ADDITIONAL QUESTIONS ABOUT RESILIENCE**

- How might a sketch of resilience be prepared in the context of the homeland security enterprise?
- What is resilience in a broad non-sector specific context?
- What is resilience in the context of homeland security policies of the United States?
- What might resilience look like or be in the context of the homeland security enterprise?

## **D. METHODOLOGY**

The methodology for this thesis is a modified policy analysis. Ball suggests that the evaluation of a policy argument through a pragmatic sense is an appropriate method to analyze public policy proposals.<sup>5</sup> The pragmatic approach to evaluating public policy incorporates feasibility concerns while maintaining the ability to view existing public policy critically. According to Ball, pragmatism is a middle ground between two forms of

---

<sup>5</sup> William Ball, "A Pragmatic Framework for the Evaluation of Policy Arguments," *Policy Studies Review* 14, no. 1/2 (1995): 3–24.

evaluation. The first being an evaluation based on critique and reform. The second being an evaluation based on a value of preserving existing practices and institutions.<sup>6</sup> Research conducted in support of this thesis reviews existing practices and critiques reforms to the homeland security enterprise caused by an emerging concept of resilience. In Chapter II, the methodology is used to learn more about the application of resilience in various contexts. Chapter III reviews and critiques existing homeland security policies of the United States and their emphasis on resilience. The exploration of existing resilience-based practices occurs in Chapter IV.

Ball's research into the pragmatic evaluation of policy arguments contributes to this research. He suggests that the context used to build the policy argument is important. For purposes of this research, the concept of resilience is specific to homeland security. Ball recommends four broad evaluation criteria be used in examining public argument and policy (Table 1).<sup>7</sup> According to Ball, the policy argument is evaluated for its contribution to a collaborative effort and the improvement of an existing enterprise.<sup>8</sup> Chapter V identifies the contributions and benefits of clarifying the concept of resilience in the homeland security context.

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<sup>6</sup> Ball, "A Pragmatic Framework for the Evaluation of Policy Arguments," 8.

<sup>7</sup> Ibid., 17–21.

<sup>8</sup> Ibid., 8.

Table 1. Ball's Pragmatic Evaluation Criteria

<b>Criteria</b>	<b>Descriptor</b>
<b>Completeness</b>	Does the policy argument address all of the important values contributing or resulting from the policy?  What has been excluded from the policy argument and why?
<b>Relevance</b>	Are the policies appropriate within the context of the discussion?  Are there good reasons for the policy argument?
<b>Consonance</b>	Are there disagreements to the claimed value of the argument?
<b>Coherence</b>	Does the policy argument, when evaluated against the prior three criteria, make sense as a whole?

## 1. Determination of Appropriate Resources

As with any journey, it is essential to stop at various locations to take in the sights, while other locations are by-passed along the way. In planning a journey, assumptions and evaluation criteria are established to create a road map to guide the journey. Determining the research map for this journey is based on the following assumptions and evaluation criteria.

- Assumption 1: A significant amount of research exists regarding complex adaptive system of systems and the homeland security enterprise of the United States.
- Assumption 2: A significant amount of literature exists that describes resilience in the homeland security context; however, minimal research offers a basic approach to understanding resilience in this context.
- Assumption 3: A significant amount of literature exists regarding the concept of resilience within the domains of social and physical resilience. This existing research may assist in the identification of appropriate models applicable to the homeland security enterprise of the United States. Synthesizing these resources with existing government policies, and professional experiences will aid in the clarification of resilience within the context of homeland security.

Based on the prior assumptions, the following criteria were used to evaluate research materials.

## **2. Evaluation Criteria**

- Does the resource add clarity to understanding the concept of resilience?
- Can information obtained from the reference be synthesized with an existing understanding of emergency management and homeland security to frame the narrative of resilience within the homeland security context?
- Do the materials contribute to clarifying the role of resilience in the context of homeland security?

## **E. THE RESEARCH JOURNEY**

The purpose of this research is to explore and identify what the concept of resilience might be in the context of the homeland security enterprise of the U.S. The first step in this process determines how resilience might be applied in a broad and non-sector specific context. The second step explores what resilience might be in the context of existing homeland security policies of the U.S. government. The third step identifies factors that influence resilience in the context of homeland security.

The concept of resilience within the homeland security context continues to evolve. Clarifying the concept of resilience focuses the practitioner's understanding of the topic. The development of a sketch of resilience adds clarity to the issue. The sketch of resilience outlines the concept in terms of the homeland security enterprise and begins to focus the practitioner's vision of resilience. The sketch is not a final product. Rather, the sketch serves as a foundation for future modifications.

The U.S. federal government is currently developing the sketch of resilience. Through various means discussed in Chapter III of this thesis, the federal government has introduced the concept of resilience to outline the vision of the homeland security enterprise of the United States. Modifying the sketch of resilience in the homeland security context is based on a variety of factors, needs, resources, and expectations. Chapter IV explores factors that contribute to the clarification and enhancement of the vision of resilience. Chapter V offers options to introduce and socialize the concept of



resilience to the homeland security practitioner. The introduction of the resilience sketch into homeland security training allows the practitioner to understand and apply the concept within their specific community or profession.

The first step to clarifying resilience in the context of homeland security is to understand and learn from existing applications of the concept in other contexts. The following chapter explores the concept of resilience in various contexts. Those contexts include different agencies of the federal government of the U.S., existing research into the concept of community resilience, psychology, and the concept of complexity within the homeland security enterprise. The review of existing literature is the first step towards adjusting the focus to create a clearer vision of resilience.

## **II. A MACRO PERSPECTIVE OF RESILIENCE**

The use of the term resilience is not new. The term is defined in various sciences and professions to describe a system's ability to adapt and recover from adversity. Understanding the concept of resilience is contextual and varies among disciplines. Multiple approaches to resilience exist, and those depend on the ability of the individual or community to adapt to adversity in a positive manner. In the broader context, resilience is a process and not a trait of an individual or community. Measuring resilience becomes a complicated process of subjectivity.

The concept of national resilience is an important goal of the homeland security enterprise of the U.S. Prior to the establishment of the homeland security enterprise; resilience described the outcome of traditional mitigation projects. In the early years of the homeland security enterprise, resilience was used in the context of protecting America's infrastructure. Critical infrastructure systems were designed or enhanced to withstand significant pressures and rebound from stress. Resilience was observed more from an engineering perspective rather than a social perspective. The need to analyze systems for vulnerabilities gave rise to studies in self-organized criticality and preparing for low probability-high consequence events commonly referred to as a Black Swan.<sup>9</sup>

### **A. RESILIENCE EXISTS**

The inconsistent use of terminology within the homeland security enterprise creates challenges for the practitioner. Freed states that the inability to determine one single definition of terrorism creates a problem of understanding the relationship between homeland security and anti-terrorism efforts.<sup>10</sup> Frequent and inconsistent use of the term resilience creates a variety of dimensions and contexts that exists inside and out of the homeland security enterprise. A *New York Times* article indicated that senior American officials are beginning to use the adjective resilience as a means of describing continuing

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<sup>9</sup> Taleb, *The Black Swan: The Impact of the Highly Improbable*, 366.

<sup>10</sup> Judson M. Freed and Naval Postgraduate School, Department of National Security Affairs, *No Failure of Imagination* (Monterey, CA: Naval Postgraduate School, 2011), 109.

threats to American security.<sup>11</sup> Officials interviewed for the article describe resilient as the adversary's ability to rebound from terrible personnel losses and the capability to recruit again to execute more vicious attacks.<sup>12</sup> The Homeland Security Institute's *Community Resilience Profiles: Assessment and Evaluation* indicates that resilience "has become a central homeland security construct in recent years, receiving increased attention from policy makers in a variety of contexts."<sup>13</sup> Rand suggests several areas for future research to strengthen the evidence base for community resilience. According to Rand's research, existing literature provides insight into the factors necessary to build community resilience.<sup>14</sup> However, in Rand's opinion, existing literature is conceptual or theoretical in nature. Rand suggests that existing research is based on a retrospective approach to resilience and does not allow for a comparative analysis of resilience within the field of health security. An existing challenge posed by the Rand report is defining resilience further and "prioritizing the critical subcomponents of resilience in the context of health security."<sup>15</sup>

Analysis are needed to identify and test activities that will help communities strengthen their resilience. Given the ongoing issue of limited resources crystallizing these priority activities is the next step to moving toward this National Health Security Strategy resilience goal.<sup>16</sup>

Rand describes the relationship between resilience and vulnerability as central concepts to understanding the complex environments created by disasters. As Rand indicates, existing research has focused on vulnerability. A lack of exploration into

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<sup>11</sup> Thom Shanker and Eric Schmitt, "How Resilient Is Post-9/11 America?" *The New York Times Sunday Review*, sec. The Opinion Pages, September 8, 2012.

<sup>12</sup> Ibid.

<sup>13</sup> Homeland Security Studies and Affairs Institute, *Community Resilience Profiles: Assessment and Evaluation*, 2011.

<sup>14</sup> Anita Chandra, *Building Community Resilience to Disasters a Way Forward to Enhance National Health Security* (Santa Monica, CA: RAND, 2011).

<sup>15</sup> Ibid., 57.

<sup>16</sup> Ibid., 59.

resilience has in their words, created a “plethora of definitions that is both a symptom of confusion and a cause of confusion and ambiguity.”<sup>17</sup>

Within the context of psychology, Ungar indicates that the term resilience appeared in the 1980s and was “a metaphor for the ability of individuals to recover from exposure to chronic and acute stress.”<sup>18</sup> During this decade, the use of the term became more frequent. Clarifying the concept will allow homeland security practitioners and researchers an opportunity to frame future discussions and research regarding the role of resilience within the context of homeland security.

## **B. THE PERSPECTIVE OF THE U.S. GOVERNMENT TOWARD RESILIENCE**

The existing context of the federal government’s concept of resilience is influenced by several policies of the United States government. One policy is Presidential Policy Directive 8 (PPD-8) that describes resilience as “the ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies.”<sup>19</sup> The definition of resilience contained in PPD-8 is consistent with other definitions contained in the National Preparedness Goal and the Whole Community concept released by the U.S. Federal Emergency Management Agency (FEMA). According to PPD 8, national resilience is achieved by a national preparedness system designed to promote community resilience.<sup>20</sup> The Department of Homeland Security has identified resilience as “the ability of systems, infrastructures, government, business and citizenry to resist, absorb, and recover from or adapt to an adverse occurrence that may cause harm, destruction, or loss of national significance.”<sup>21</sup>

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<sup>17</sup> Douglas Paton, *Disaster Resilience: Building Capacity to Co-Exist with Natural Hazards and their Consequences* (Springfield, IL: Charles C. Thomas Publisher, Ltd., 2006), 88.

<sup>18</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*, 13.

<sup>19</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, “Presidential Policy Directive 8,” March 30, 2011, [http://www.dhs.gov/xabout/laws/gc\\_1215444247124.shtm](http://www.dhs.gov/xabout/laws/gc_1215444247124.shtm).

<sup>20</sup> Ibid.

<sup>21</sup> Homeland Security Studies and Affairs Institute, *Community Resilience Profiles: Assessment and Evaluation*, footnote 12.

Within the federal government of the U.S., various examples and definitions of resilience exist. The existence of multiple variations creates a lack of clarity among practitioners. Financial regulators of the U.S. government defined the resilience of the U.S. financial system as the rapid recovery and resumption of the clearing and settlement activities that support critical financial markets.<sup>22</sup> The Interagency Climate Change Adaptation Task Force defined resilience as “A capability to anticipate, prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to social well-being, the economy, and the environment.”<sup>23</sup> The United States Department of Transportation (DOT) defines resilience in the context of recovery. The DOT suggests that recovery include the rebuilding of networks to a “superior standard that is more resilient against future disasters.”<sup>24</sup> DOT offers a process for achieving resilience within the transportation sector. Resilience should include methods to construct stronger infrastructure, establish redundancies within the transportation network, and strengthen links between transportation nodes and communities. The DOT document provides an outcome or image of resilience. “Resiliency in the recovery phase should result in a network that has a vibrant ability to absorb damage from a future disaster and thereby bounce back rapidly following the incident.”<sup>25</sup> Within the operational context of homeland security, resilience is defined as a community that has the capabilities “to maintain its functions and structures in the face of internal and external change and to degrade gracefully when it must.”<sup>26</sup>

The Quadrennial Homeland Security Review (QHSR) provides goals to ensuring resilience to disasters. Sub goals include the mitigation of hazards, enhancing

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<sup>22</sup> “SEC Issues Report on Efforts of Private Sector to Implement Interagency Paper on Sound Practices to Strengthen Resilience of U.S. Financial System,” *US Fed News Service, Including US State News*, April 27, 2006.

<sup>23</sup> United States, Interagency Climate Change Adaptation Task Force, *Federal Actions for a Climate Resilient Nation* (Washington, DC: Interagency Climate Change Adaptation Task Force, 2011), 25, C.

<sup>24</sup> United States and Dept. of Transportation, *Recovering from Disasters: The National Transportation Recovery Strategy* (Washington, DC: U.S. Dept. of Transportation, 2009), 3.

<sup>25</sup> *Ibid.*

<sup>26</sup> President’s Homeland Security Advisory Council (U.S.), Community Resilience Task Force, *Community Resilience Task Force Recommendations* (Washington, DC: U.S. Dept. of Homeland Security, Homeland Security Advisory Council, 2011), 59.

preparedness, ensuring effective emergency response, and developing the ability to recover rapidly.<sup>27</sup> QHSR expands the view of emergency management and the homeland security enterprise to include a balanced approach to response, recovery, mitigation, and preparedness. Accomplishing this goal requires the establishment of priorities based on a better understanding of risk and informed decision-making.<sup>28</sup>

The Government Accountability Office (GAO) issued a report on the effectiveness of the U.S. Department of Homeland Security's (DHS) efforts to enhance the resilience of America's critical infrastructure. The GAO report states that since 2006, organizations of the federal government identified resilience as important. The GAO suggests that resilience influences an evolution in traditional emergency management concepts, such as recovery, reconstitution, and continuity of operations.<sup>29</sup> The GAO report states that the DHS's QHSR placed an emphasis on resilience by categorizing the concept as one of three essential factors in a comprehensive approach to homeland security.<sup>30</sup> The QHSR defines resilience in the context of "fostering individual, community, and system robustness, adaptability, and capacity for rapid recovery."<sup>31</sup>

The QHSR suggests that the concept of building national resilience is not new and that the civil defense era of the United States offers examples of actions spurring debate in the interest of national resilience.<sup>32</sup> The concept of Whole Community is an initiative being promoted by FEMA. Whole Community is based on the premise that government has a significant role in disaster response; however, a government centric response will not be enough to meet all of the needs of a community created by a disaster.<sup>33</sup> The Whole Community concept indicates that resilience is achieved by increasing individual

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<sup>27</sup> U.S. Government Accountability Office, *Quadrennial Homeland Security Review* by David C. Maurer, (GAO-11-153R), Washington, DC: GPO, 2010, 63.

<sup>28</sup> U.S. Government Accountability Office, *Quadrennial Homeland Security Review*, 63.

<sup>29</sup> U.S. Government Accountability Office, *Critical Infrastructure Protection* by Stephen L. Caldwell, (GAO-10-772), Washington, DC: GPO, 2010, 33.

<sup>30</sup> Ibid.

<sup>31</sup> U.S. Government Accountability Office, *Quadrennial Homeland Security Review*, 63.

<sup>32</sup> Ibid.

<sup>33</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, "Whole Community," (n.d.), <http://www.fema.gov/about/wholecommunity.shtm>.

preparedness and the use of communities as a force multiplier to plan, respond, and recover from a disaster.<sup>34</sup> The application of the Whole Community concept to the homeland security practitioner requires a clear definition of resilience. The QHSR describes the images of American resilience created in the aftermath of 9/11. According to the QHSR, these images “portrayed a Nation determined to do whatever it might take to recover from this disaster and to prevent such attacks from occurring again.”<sup>35</sup> Although the QHSR offers an image of national resilience, there are differences in the image and timing of resilience demonstrated by each community impacted by 9/11.

The QHSR suggests that the U.S. is a resilient nation.<sup>36</sup> However, a murky understanding of resilience’s role within the enterprise challenges the ability of the homeland security practitioner to apply the concept. QHSR suggests that the urgency and frequency of use of the term resilience within the homeland security enterprise is caused by the “rapid evolution of national security threats and the arrival of the information age.”<sup>37</sup> The individual or community’s view of resilience is influenced through an understanding of how residents of the United States have responded to the adversities of disaster. Flynn identifies several significant disasters in the history of the United States, such as the Chicago fire of 1871, the Boston Fire of 1872, the San Francisco earthquake of 1906, and Mississippi River flood of 1927.<sup>38</sup> The resilience of communities is demonstrated in each instance by the ability of citizens and communities to absorb, adapt, and recover from these adversities. Realizing the similarities of resilient communities impacted by adversity clarifies the concept of resilience to the homeland security practitioner. Although the prior examples offer models of resilience, their existence does not alter the hypothesis that a resilient community must be challenged by adversity.

Understanding resilience in the broader context of policies of the U.S. is important to clarifying the resilience vision of the practitioner. This section of the

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<sup>34</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, “Whole Community.”

<sup>35</sup> United States. Government Accountability Office, *Quadrennial Homeland Security Review*, 1.

<sup>36</sup> *Ibid.*, 63.

<sup>37</sup> *Ibid.*, 16.

<sup>38</sup> Flynn and Council on Foreign Relations, *The Edge of Disaster: Rebuilding a Resilient Nation*, 240.

literature review introduced a macro perspective of resilience in the context of existing policies of the U.S. government. Chapter III analyzes specific homeland security related policies and their influence upon the concept of resilience within the enterprise.

### **C. MULTIPLE APPROACHES TO RESILIENCE**

Understanding resilience requires emergency management and homeland security practitioners to explore the meaning of resilience within the homeland security enterprise. Flynn proposes that national resilience requires risk and vulnerability reduction in conjunction with increases to the nation's capacity to bounce back swiftly from man made or natural disasters.<sup>39</sup> Flynn suggests that reductions to risk and vulnerability, combined with the development of further capacity, cannot be achieved through a singular approach to homeland security and emergency management. The development of a multi-disciplinary view in these areas influences the resilience of the United States.

Palin suggests that resilience is the ability to absorb, buffer, self organize, and adapt to change.<sup>40</sup> Haimes, Crowther, and Horowitz explain resilience as a process supported by a robust and redundant system.<sup>41</sup> Coafee, Wood, and Rogers provide a multi-disciplinary view to resilience.<sup>42</sup> The view taken by Coafee et al. supports the concept that resilience is not achieved through the efforts of a single system; rather viewing the concept from multiple perspectives clarifies the concept of resilience.

Resilience exists in various contexts. Clarifying the contributions and benefits of resilience to the homeland security enterprise focuses the homeland security practitioner's vision of the concept. Establishing a clearer focus of resilience requires a synthesis of existing information and the development of a sketch. This synthesis begins in Chapter IV.

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<sup>39</sup> Flynn and Council on Foreign Relations, *The Edge of Disaster: Rebuilding a Resilient Nation*, 240.

<sup>40</sup> Philip J. Palin, "Resilience: The Grand Strategy," *Homeland Security Affairs* 6, no. 1 (January 2010), <http://www.hsaj.org/?article=6.1.2>.

<sup>41</sup> Yacov Y. Haimes, Kenneth Crowther, and Barry M. Horowitz, "Homeland Security Preparedness: Balancing Protection with Resilience in Emergent Systems," *Systems Engineering* 11, no. 4 (2008): 287–308.

<sup>42</sup> Jon Coafee, David Murakami Wood, and Peter Rogers, *The Everyday Resilience of the City* (United Kingdom: Palgrave Macmillan, 2009), 1.



#### **D. THOUGHTS ON MEASURING RESILIENCE**

Ungar offers insight into the measurement of resilience by suggesting that in most instances, metrics used to measure resilience in the field of psychology are developed with minimal regard for the traditional and cultural coping strategies existing at the individual and community level.<sup>43</sup> The complexity of measuring resilience at different levels within an environment or multiple environments is a challenge to the homeland security practitioner. Ungar proposes that a broader understanding of multiple ecologies assists in developing interpretive models to navigate through adverse environments.<sup>44</sup> Existing research conducted within the realm of psychological and social sciences indicates that resilience is a complex interactive process influenced by exposure to risk. Rutter indicates that “resilience is a process and not a trait; moreover it operates throughout the lifespan before, during and after adverse conditions.”<sup>45</sup>

Lipsitt and Demik define resilience as a “constellation of risk exposure and the manifestation of effective functioning in the face of risk.”<sup>46</sup> The research was conducted in the field of psychology and suggests that the exploration of resilience move away from the concepts of understanding and defining risk. A shift from defining risk and understanding the individual’s process to achieve a level of functional resilience would be of greater benefit.<sup>47</sup>

#### **E. RESILIENCE REQUIRES ADAPTABILITY**

Luthar, Cicchetti, and Becker suggest that resilience is a dynamic process encompassing positive adaption within the context of significant adversity. The suggestion is based on two conditions. Those conditions require an exposure to a significant threat or adversity, and the achievement of positive adaptation despite major

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<sup>43</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*, 15.

<sup>44</sup> Ibid.

<sup>45</sup> Ibid., 40.

<sup>46</sup> Ibid., 143.

<sup>47</sup> Ibid., 140.

assaults on the developmental process.<sup>48</sup> The authors provide an in-depth historical analysis of resilience as it applies to the field of childhood development. The research process used in the development of this historical narrative parallels similar questions posed by the homeland security practitioner. These perspectives clarify the concept of resilience within the context of homeland security.

Within the field of childhood development, Luthar et al. conducted significant research into the function of resilience. The introduction and application of the term resilience within the field of childhood development created similar problems faced today within the homeland security enterprise. Luthar's research offers insight into the ongoing discussion regarding the function and role of resilience within the homeland security enterprise. The concept of resilience within this area of research applies to the treatment and recovery of children impacted by adversity. Luthar et al. believe that resilience is a function of responding to an adverse condition and adapting to the event.<sup>49</sup> Resilience differs between individual patients. Patients will recover at their own pace. Recovery is manipulated by the guidance and treatment provided by the clinician; however, achieving a resilient state depends on the individual.<sup>50</sup> This is a significant contribution to the ongoing discussion of resilience in the context of homeland security. Within Luthar's research, several factors contribute to the resilient outcome of the individual.<sup>51</sup> The suggestions provided by Luthar et al. are based on actions and conditions in which the individual may recover, and therefore, become resilient.<sup>52</sup> Luthar et al. suggests that resilience may actually be dependent upon multiple systems.

## **F. NAVIGATING THROUGH COMPLEXITY**

Madia's research into the role of flexibility within the complex environment of the homeland security enterprise serves as a starting point to define the operational role of

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<sup>48</sup> Suniya S. Luthar, Dante Cicchetti, and Bronwyn Becker, "The Construct of Resilience: A Critical Evaluation and Guidelines for Future Work," *Child Development* 71, no. 3 (2000): 543–562.

<sup>49</sup> Ibid.

<sup>50</sup> Ibid.

<sup>51</sup> Ibid.

<sup>52</sup> Ibid.

resilience through a concept of adaptive capacity.<sup>53</sup> The strategic value of Madia's research is the assertion that the homeland security enterprise is a complex adaptive system of systems. Madia recommends ways to enhance the organic ability of the homeland security organization.<sup>54</sup> The ability to operationalize the concept of resilience as a result of an adaptive capacity is influenced by several strategic factors recommended as part of Madia's initial research. The factors recommended by Madia include flexibility, adaptability, and decentralized decision-making based on a series of performance controls.<sup>55</sup> Madia's research into complex adaptive systems influences the ongoing discussions regarding the complexities of resilience as a national preparedness goal. The first contribution from Madia's research is the establishment of doctrine to create a foundation for operating in a complex environment.<sup>56</sup> The second contribution is the development of leaders who are agile, adaptable, flexible, and highly competent.<sup>57</sup> The third contribution is that the training of lower level staffs will decentralize decision making during complex events.<sup>58</sup>

## **G. A COMMUNITY PERSPECTIVE ON RESILIENCE**

Rather than define resilience, the Rand Corporation defined the term "community resilience."

Community resilience entails the ongoing and developing capacity of the community to account for its vulnerabilities and develop capabilities that aid communities in (1) preventing, withstanding, and mitigating the stress of a health incident; (2) recovering in a way that restores the community to a state of self sufficiency and at least the same level of health and social

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<sup>53</sup> James D. Madia, "Homeland Security Organizations: Design Contingencies in Complex Environments" (master's thesis, Naval Postgraduate School, 2011), 105.

<sup>54</sup> Ibid.

<sup>55</sup> Ibid.

<sup>56</sup> Ibid.

<sup>57</sup> Ibid., 53.

<sup>58</sup> Ibid., 54.

functioning after a health incident; and (3) using knowledge from a past response to strengthen the community's ability to withstand the next health incident.<sup>59</sup>

Rand offered considerations for future research into the area of resilience. Although the Rand report relates to resilience within the context of health preparedness, the recommendations contained within the report identify a need to conduct further research to clarify the concept of resilience.<sup>60</sup> The Rand report identifies areas in which the evidence base for community resilience may be strengthened by further defining and prioritizing the critical subcomponents of resilience within the context of health security. In defining community resilience, the definition of "community" varies. According to the Rand report, community can be a geographic area or is bounded by membership of a cultural group.<sup>61</sup> An important aspect of this statement is the assertion that a disaster may create a community of interest.

Community resilience is defined as a "sustained ability of a community to withstand and recover from adversity."<sup>62</sup> The Rand report implies that "less clarity on the building process of resilience"<sup>63</sup> exists. The report recognizes the importance of community resilience within the context of health security and suggests that the processes of leveraging programs and resources to build resilience remain a significant challenge.<sup>64</sup> The Rand report influences this thesis by recognizing the existing difficulties related to a lack of synthesizing "the wealth of information from the current body of literature and place it within the context of national health security."<sup>65</sup> This contribution of the Rand report parallels the on going discussions of resilience within the homeland security enterprise of the United States. Another issue identified by the Rand report is the lack of clarity in measuring community resilience and the lack of progress towards achieving

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<sup>59</sup> Chandra, *Building Community Resilience to Disasters a Way Forward to Enhance National Health Security*, XV.

<sup>60</sup> Ibid.

<sup>61</sup> Ibid.

<sup>62</sup> Ibid.

<sup>63</sup> Ibid.

<sup>64</sup> Ibid.

<sup>65</sup> Ibid.

resilience.<sup>66</sup> Rand identifies several areas for future research to strengthen the evidence base of community resilience. According to Rand's research, existing literature provides insight into the factors necessary for building community resilience. Rand further indicates that existing research is based on a retrospective approach to resilience and does not allow for a comparative analysis of resilience within the field of health security.

## **H. THE STRATEGIC VALUE OF RESILIENCE**

The concept of resilience is a strategic objective to strengthen the adaptive capacities of a community. Although PPD-8 identifies a goal of national resilience, existing federal documents do not define a national resilience strategy for the United States. Research and essays, such as Phil Palin's *Resilience: The Grand Strategy* and Porter and Muckeleby's, *A National Strategic Narrative*, identify approaches to developing a strategy for national resilience. George Kennan's, *Long Telegram* influenced these works. The *Long Telegram* offered a strategy for containment during World War II. Captain Wayne Porter and Colonel Mark "Puck" Muckleby suggest a transition from a national strategy of containment to a more open strategy of sustainment.<sup>67</sup> Palin suggests that resilience provides a buffer to turbulence within a community.<sup>68</sup> A significant element of any strategy for resilience includes the acknowledgement that adversity will occur and resilient communities will be prepared to manage the aftermath of such events. Porter and Muckleby suggest that strengthening community resilience requires a focus on sustaining security and prosperity.<sup>69</sup>

Numerous resources claim that the use of strategic investments in traditional government programs, such as education, workforce development, and literacy, contribute to the resilience of the United States.<sup>70</sup> The federal government of the United

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<sup>66</sup> Chandra, *Building Community Resilience to Disasters a Way Forward to Enhance National Health Security*, XV.

<sup>67</sup> Wayne Porter and Mark Mukleby, *A National Strategic Narrative* (Washington, DC: Woodrow Wilson Center for Scholars, 2011).

<sup>68</sup> Palin, *Resilience: The Grand Strategy*, 20.

<sup>69</sup> Ibid.

<sup>70</sup> Ibid.

States contributes to the concept of national resilience. Both the *Quadrennial Homeland Security Review* and Flynn use the example of the Truman and Eisenhower administrations' construction of the interstate highway system of the United States as an example of public works projects designed to support the sustainment of a resilient nation.<sup>71,72</sup> The allocation of funds to construct the interstate system was based on a need to facilitate the mass evacuation of urban populations, while at the same time maximizing these routes for military transportation. In the decades following the construction of the national interstate system, communities have grown around the system.

In response to the adversities of the Great Depression, President Franklin Roosevelt created the Works Progress Administration (WPA). According to Freed, the intent of the WPA was the “restoration of the economic strength of the nation, providing immediate relief for the many displaced persons, and above all preserving the American way of life.”<sup>73</sup> The WPA is one of the first programs of the federal government of the U.S. to provide direct funds to citizens as well as state and local governments.<sup>74</sup> The WPA example demonstrates a potential long-term degradation of national resilience associated with the federal government's role in sustainment activities. Although the WPA stimulated the U.S. economy and created a strong workforce, Freed suggests that the role of the federal government preempted state and local governments as the provider of aid to individuals. The result was the creation of a dependence and reliance upon the federal government to provide assistance.<sup>75</sup>

## **I. PRELIMINARY CONCLUSIONS ON RESILIENCE**

Following the release of the *National Preparedness Goal* and the *Quadrennial Homeland Security Review*, resilience appears to be a vision of the homeland security

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<sup>71</sup> Flynn and Council on Foreign Relations, *The Edge of Disaster: Rebuilding a Resilient Nation*, 240.

<sup>72</sup> U.S. Department of Homeland Security, *Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland* (Washington, DC: Department of Homeland Security, 2010).

<sup>73</sup> Freed and Naval Postgraduate School, Department of National Security Affairs, *No Failure of Imagination*, 53.

<sup>74</sup> *Ibid.*, 55.

<sup>75</sup> *Ibid.*

enterprise. Although recent policies and requirements of the federal government emphasize resilience, the image of resilience remains foggy and left to the interpretation and perception of policy makers.

The sciences of engineering and psychology have used the term resilience for many years. Although these sciences have applied the term, they continue to struggle with defining the term within their specific context. A significant amount of literature exists from both sciences. Research based in these fields of study identifies options to clarifying resilience. Clarifying resilience requires an understanding of today and tomorrow. Although FEMA's Strategic Foresight Initiative (SFI) offers a futuristic view of the emergency management community and resilience, minimal literature exists to establish a micro view of resilience within the present context of homeland security. Based on the information contained in this literature review, resilience is capable of being sketched as a synthesis of the prior experiences of a population, government policies, and the interaction of these components. Resilience is described as being complex. Finally, resilience is a vision of the homeland security enterprise rather than a goal or policy. The following chapters build upon these initial conclusions. In Chapter III, critiques and analysis of existing homeland security policies begin to focus on a vision of resilience. In Chapter IV, existing research is synthesized to clarify this concept of resilience in the context of homeland security.

### **III. FEDERAL INITIATIVES AS THE ROUX OF POLICY**

#### **A. ESTABLISHING A BASE**

A roux is a mixture of equal parts cooking oil, flour, and onion. As individual items, these ingredients possess distinct physical appearances and scents. When synthesized, the ingredients create a base for a traditional Louisiana gumbo. Risks exist to overcooking or undercooking a roux. Once the roux is complete, the next step is a layered introduction of additional ingredients into the pot.

In the prior chapter, the broader view of resilience provided an opportunity to explore the application of the concept in various contexts. This chapter begins to narrow the focus of the homeland security practitioner's vision of resilience. A gumbo is a synthesis of various ingredients. Similarly, understanding the role of resilience within the context of homeland security requires a synthesis of information obtained from various sources. This chapter establishes a base to clarifying resilience within the context of homeland security in the United States.

The concept of resilience has become a significant public policy issue of the United States. The emphasis placed on resilience has resulted in a number of resilience-based policies and initiatives. Building the synthesis of resilience requires an understanding of these policies and initiatives. This chapter reviews and critiques these existing policies and initiatives. Criteria to evaluate the contributions of a resource to this research was introduced in Chapter I. Based on these criteria, it was determined that the following policies, initiatives, and documents contribute to clarifying the role of resilience in the context of homeland security. Resilience based policies of the U.S. federal government impact all levels of government, and are key components of program requirements attached to federal assistance to enhance the preparedness of state and local jurisdictions. The following homeland security documents relate to the enterprise as a whole rather than a specific sector, such as cyber and critical infrastructure. The analysis and critique of these documents narrows the contextual view of resilience. The review of federal policies regarding resilience includes the following documents.



- The National Security Strategy (NSS)
- The Quadrennial Homeland Security Review (QHSR)
- Presidential Policy Directive-8 (PPD-8)
- Comprehensive Preparedness Guide 201 THIRA

## **B. STEP 1: THE NATIONAL SECURITY STRATEGY (NSS)**

The White House issued the National Security Strategy (NSS) in May 2010. President Barak Obama's cover letter to the document begins with, "Time and again in our Nation's history, Americans have risen to meet and to shape moments of transition."<sup>76</sup> Obama's words demonstrate the existing resilience of the United States. The NSS connects the issues of national security, national competitiveness, resilience, and moral example.<sup>77</sup> The NSS identifies the necessary steps to sustaining America's ability to lead a world in which the nation's economic and individual opportunities are more diffuse and link to securing a more resilient nation.<sup>78</sup> The NSS implies that the foundation of America's strength lies in the welfare of the American people through prosperity. Prosperity supports not only the welfare of the population, but the defense and diplomacy functions of the U.S. government.<sup>79</sup>

According to Porter and Muckleby, a relationship exists between prosperity and resilience.<sup>80</sup> Future discussions regarding national security should include concepts to sustain the prosperity of the American people. The concept of resilience in the homeland security context offers a means to accomplish this goal. The national security importance of resilience is based on the NSS. According to the NSS, the national security of the United States "draws on the strengths and resilience of our citizens, communities, and economy."<sup>81</sup>

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<sup>76</sup> The White House, *National Security Strategy* (Washington, DC: The White House, 2010).

<sup>77</sup> The White House, "Homeland Security," (n.d.), <http://www.whitehouse.gov/issues/homeland-security>.

<sup>78</sup> Ibid., 2.

<sup>79</sup> Ibid., 9.

<sup>80</sup> Porter and Muckleby, *A National Strategic Narrative*, 15.

<sup>81</sup> The White House, "Homeland Security."

The NSS outlines a Whole of Government approach to strengthening national capacities to achieve a resilient nation. The outline describes the efforts of key governmental functions related to capacity building. Those functions include defense, diplomacy, economic development, homeland security, intelligence, strategic communications, the American People, and the private sector. According to the NSS homeland security is an approach to “ensure our national resilience in the face of the threat and hazards.”<sup>82</sup> The NSS mentions the terms resilience and resilient in the categories of *the American People* and *the Private Sector*. The document emphasizes the “resilience of our citizens” and “that our citizens are the heart of a resilient country.”<sup>83</sup> Although the concept of resilience is mentioned several times in the NSS, a frame to discuss the concept of resilience as an approach to public policy is absent from this document.

The NSS defines resilience as “the ability to adapt to changing conditions and prepare for, withstand, and rapidly recover from disruption.”<sup>84</sup> Although the NSS definition of resilience is consistent with other definitions contained in the literature review of this thesis, the question of what resilience might look like in the context of homeland security still remains.

The NSS outlines initiatives to promote resilience,<sup>85</sup> those include enhancing security at home through actions to secure borders of the United States, protect critical infrastructure and key resources, and the security of cyber space. The NSS recognizes that “we will not be able to deter or prevent every single threat.”<sup>86</sup> The Whole Community document and FEMA Administrator Craig Fugate emphasize that government cannot do it alone. According to Steven Simon with the Council on Foreign Relations, the NSS misses an opportunity to discuss the concept of resilience further in

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<sup>82</sup> The White House, “Homeland Security,” 15.

<sup>83</sup> Ibid., 16.

<sup>84</sup> Ibid.

<sup>85</sup> Ibid.

<sup>86</sup> Ibid., 18.

the face of adversity. According to Simon, then Deputy National Security Advisor John Brennan indicated that when a significant event occurs, the resilience of the American people would instill a calm and trust in the government.<sup>87</sup>

The acknowledgement that every threat will not be prevented or deterred is consistent with existing research in the field of psychology. The prior statement relates to the effects of acceptable risk on the resilience of an individual. Within the context of psychology, the general premise is that once challenged by adversity, the patient may not be able to recover to 100% of their pre-challenged state. Homeland security based resilience strategies should recognize that (1) not all risks are capable of being mitigated, (2) disasters will occur, and (3) that resilience may not be demonstrated by replicating pre-disaster conditions.

The NSS serves as a cornerstone of federal government policy regarding resilience. The importance of the NSS to the resilience discourse is based on a higher emphasis placed on the concept as compared to prior national homeland security strategies. The 2003 National Strategy for Homeland Security rarely mentioned the term resilience. The 2007 version of the National Strategy for Homeland Security mentioned resilience in the context of protecting America's critical infrastructure. A distinction between the 2010 NSS and prior National Strategies for Homeland Security is the shift from resilience as a single aspect of physical resilience to a concept of resilience of the whole. A recent report released by the Congressional Research Service indicated that the existence of various definitions of homeland security is a significant public policy issue, and impacts the setting of government priorities.<sup>88</sup> The introduction of resilience into the homeland security vocabulary contributes to the complexity of defining the homeland security enterprise. The emphasis placed on resilience is recognized in both the NSS and the QHSR. Although the emphasis on resilience suggests that the concept is a significant homeland security policy, the question of what might resilience look like in the context of homeland security still remains.

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<sup>87</sup> Stephen Biddle et al., "Obama's NSS: Promises and Pitfalls," *Council on Foreign Relations*, May 28, 2010, <http://www.cfr.org/defensehomeland-security/obamas-nss-promise-pitfalls/p22240>.

<sup>88</sup> U.S. Library of Congress, Congressional Research Service, *Defining Homeland Security: Analysis and Congressional Considerations*.

## C. STEP 2: THE QUADRENNIAL HOMELAND SECURITY REVIEW (QHSR)

The preparation of roux is an act of synthesis. Ingredients are continually added to the pot until a synthesis occurs. As a companion document to the 2010 National Security Strategy, the QHSR begins to build upon the concept of resilience.<sup>89</sup> The DHS issued *The Quadrennial Homeland Security Review: A Strategic Framework for a Secure Homeland* in February 2010. The QHSR provides a vision for homeland security, as well as defines the homeland security enterprise of the United States.

### 1. The Vision for Homeland Security<sup>90</sup>

A homeland that is safe, secure, and **resilient** against terrorism and other hazards where American interests, aspirations, and way of life can thrive

### 2. Homeland Security Enterprise<sup>91</sup>

The homeland security “enterprise” refers to the collective efforts and shared responsibilities of Federal, state, local, tribal, territorial, nongovernmental, and private sector partners-as well as individuals, families, and communities-to maintain critical homeland security capabilities. It connotes a broad-based community with a common interest in the safety and well-being of America and American society.

The QHSR identifies security, resilience, and customs/exchange as three key concepts to achieving a comprehensive approach to homeland security. Within the QHSR, resilience is defined as the ability to “Foster individual, community, and system robustness, adaptability, and capacity for rapid recovery...”<sup>92</sup> The QHSR states “...homeland security activities must be built upon a foundation of ensuring security and resilience.”<sup>93</sup> Resilience is a foundational element of homeland security. According to

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<sup>89</sup> U.S. Library of Congress, Congressional Research Service, *Defining Homeland Security: Analysis and Congressional Considerations*.

<sup>90</sup> U.S. Department of Homeland Security, *Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland*.

<sup>91</sup> Ibid.

<sup>92</sup> Ibid.

<sup>93</sup> U.S. Government Accountability Office, *Quadrennial Homeland Security Review: Enhanced Stakeholder Consultation and Use of Risk Information Could Strengthen Future Reviews*, (GAO-11-873), Washington, DC: GPO, 2011.

Flynn and the Community Resilience Task Force, the American enterprise has demonstrated an innate sense of resilience.<sup>94, 95</sup>

The American narrative offers perspective into the concept of resilience as a foundation of homeland security. The following narrative is based on Flynn's historical perspective, and a common understanding of U.S. history.<sup>96</sup> A historical perspective offers insight into the assertion that resilience is a foundation of the enterprise.

Early European explorers demonstrated resilience when settling the United States. During the Revolutionary War, American revolutionaries exhibited resilience in fighting for a new Nation. Recovering from the American Civil War created opportunities to exhibit the resilience of America. The Dust Bowl and Great Depression of the late 1920s through 1930s demonstrated the resilience of a nation in the face of environmental and economic adversity.

### **3. The Value of the QHSR**

According to the Congressional Research Service, the value of the QHSR as a strategic homeland security document is under scrutiny, however, the QHSR is one of several documents listed by DHS as a strategic document. The five homeland security missions contained within the QHSR are as follows.<sup>97</sup>

- Mission 1: Preventing Terrorism and Enhancing Security
- Mission 2: Securing and Managing our Borders
- Mission 3: Enforcing and Administering Our Immigration Laws
- Mission 4: Safeguarding and Securing Cyberspace
- Mission 5: Ensuring Resilience to Disasters

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<sup>94</sup> Flynn and Council on Foreign Relations, *The Edge of Disaster: Rebuilding a Resilient Nation*, 240.

<sup>95</sup> President's Homeland Security Advisory Council (U.S.), Community Resilience Task Force, *Community Resilience Task Force Recommendations*.

<sup>96</sup> Flynn and Council on Foreign Relations, *The Edge of Disaster: Rebuilding a Resilient Nation*, 240.

<sup>97</sup> U.S. Department of Homeland Security, *Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland*.

#### **4. Mission Area 5: Ensuring Resilience to Disasters**

Mission Area 5 relates to the scope of research being conducted as part of this thesis. The remaining analysis of the QHSR focuses on *Mission Area 5: Ensuring Resilience to Disasters*. Mission Area 5 is based on the traditional emergency management functions of the homeland security enterprise. Those traditional functions include preparedness, response, recovery and mitigation. Mission Area 5 emphasizes the creation of an approach that “ensures greater resilience in our communities and for our Nation.”<sup>98</sup> The QHSR suggests resilience is a result of “a rapid evolution of national security threats and the arrival of the information age have increased the urgency of building up—and emphasizing—our historically resilient posture”<sup>99</sup>

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<sup>98</sup> U.S. Government Accountability Office, *Quadrennial Homeland Security Review: Enhanced Stakeholder Consultation and Use of Risk Information Could Strengthen Future Reviews*, 63.

<sup>99</sup> U.S. Department of Homeland Security, *Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland*.

Table 2. Goals and Objectives of Mission Area 5

<b>Ensuring Resilience to Disasters Mission Goals and Objectives</b>
<p><b>Goal 5.1: Mitigate Hazards:</b> Strengthen capacity at all levels of society to withstand threats and hazards.</p> <p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>• <b>Reduce the vulnerability of individuals and families:</b> Improve individual and family capacity to reduce vulnerabilities and withstand disasters.</li> <li>• <b>Mitigate risks to communities:</b> Improve community capacity to withstand disasters by mitigating known and anticipated hazards.</li> </ul> <p><b>Goal 5.2: Enhance Preparedness:</b> Engage all levels and segments of society in improving preparedness.</p> <p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>• <b>Improve individual, family, and community preparedness:</b> Ensure individual, family, and community planning, readiness, and capacity building for disasters.</li> <li>• <b>Strengthen capabilities:</b> Enhance and sustain nationwide disaster preparedness capabilities, to include life safety, law enforcement, information sharing, mass evacuation and shelter-in-place, public health, mass care, and public works.</li> </ul> <p><b>Goal 5.3: Ensure Effective Emergency Response:</b> Strengthen response capacity nationwide.</p> <p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>• <b>Provide timely and accurate information to the public:</b> Establish and strengthen pathways for clear, reliable, and current emergency information, including effective use of new media.</li> <li>• <b>Conduct effective disaster response operations:</b> Respond to disasters in an effective and unified manner.</li> <li>• <b>Provide timely and appropriate disaster assistance:</b> Improve governmental, nongovernmental, and private sector delivery of disaster assistance.</li> </ul> <p><b>Goal 5.4: Rapidly Recover:</b> Improve the Nation's ability to adapt and rapidly recover.</p> <p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>• <b>Enhance recovery capabilities:</b> Establish and maintain nationwide capabilities for recovery from major disasters.</li> <li>• <b>Ensure continuity of essential services and functions:</b> Improve capabilities of families, communities, private-sector organizations, and all levels of government to sustain essential services and functions.</li> </ul>

The QHSR challenges the existing thought processes of the homeland security enterprise. A result of this challenge is the need to develop adaptive capacities to address emerging and future threats. Although, the QHSR identifies technological advancements as solutions to issues of the enterprise, the document also suggests that these advancements alone will not influence the security and resilience of the country.<sup>100</sup> Improving the enterprise requires a collective approach to increase the preparedness of various systems including communities, families, and individuals. The enterprise must make changes in the way it organizes. This includes organizational changes to the way the enterprise trains, equips, and develops professional capabilities of the individual and the organization. The prior suggestions are consistent with Madia's recommendations referenced in the literature review.

As depicted in Table 3, each mission area contains goals. However, the NSS and subsequent federal documents fail to create an image of a desired outcome.

Table 3. Key Strategic Outcomes of the QHSR

<b>Key Strategic Outcomes</b>	
•	A standard for general community hazard mitigation is collaboratively developed and adopted by all communities.
•	Individuals and families understand their responsibilities in the event of a community-disrupting event and have a plan to fulfill these responsibilities.
•	Preparedness standards for life safety, law enforcement, mass evacuation and shelter-in-place, public health, mass care, and public works capabilities, including capacity levels for catastrophic incidents, have been developed and are used by all jurisdictions.
•	Jurisdictions have agreements in place to participate in local, regional, and interstate mutual aid.
•	All organizations with incident management responsibilities utilize the <i>National Incident Management System</i> , including the Incident Command System, on a routine basis and for all federally declared disasters and emergencies.

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<sup>100</sup> U.S. Government Accountability Office, *Quadrennial Homeland Security Review: Enhanced Stakeholder Consultation and Use of Risk Information Could Strengthen Future Reviews*, 63.



Understanding the role or function of resilience within the homeland security enterprise is important to building adaptive capabilities. The strategic objectives of the QHSR (Table 2) establish a high-level view of resilience within the homeland security enterprise. The strategic objectives identified in Table 2 offer minimal guidance to determining what resilience might look like in the homeland security context. Although the QHSR expands on the concept of resilience the document fails to answer the question of what resilience might be in the context of homeland security.

#### **D. STEP 3: PRESIDENTIAL POLICY DIRECTIVE 8 (PPD-8)**

On March 30, 2011, the Obama Administration released PPD-8 that establishes becoming a resilient nation as a national priority. Becoming a resilient nation is accomplished through a series of national frameworks. The national frameworks are consistent with the mission areas contained within the QHSR and include Protection, Response, Recovery, Mitigation, and Prevention. PPD-8 considers resilience as the “ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies.”<sup>101</sup> An April 25, 2012 blog posted to the website Digital Sandbox suggests that the concept of resilience plays second chair to the traditional mission areas requiring a national framework.<sup>102</sup> The requirements to conduct Threat Hazards Identification and Risk Assessments (THIRA) as well as a focus on capabilities based planning and resourcing are established by PPD-8. The goal of the national preparedness system is to build the capabilities necessary to sustain and protect the security and resilience of the United States. As with many presidential policy directives, implementation is relegated to an appropriate Cabinet level official. The official is responsible for the development of processes and systems to implement the intent of the directive. PPD-8 establishes a strategic homeland security policy of the Obama Administration and tasks the Secretary of DHS with the responsibility to implement this directive.

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<sup>101</sup> Barak Obama, *Presidential Policy Directive 8* (Washington, DC: White House Office, 2011).

<sup>102</sup> Digital Sandbox, “An Analysis of PDD-8,” The DSBlog, entry posted April 24, 2011, <http://www.dsbox.com/index.php/blog/archives/2011/04/>.

#### **E. STEP 4: THE NATIONAL PREPAREDNESS GOAL (NPG)**

Additional seasonings add to the flavor and consistency of a roux. The NPG was published in September 2011 and introduces a series of core capabilities deemed as necessary to achieve a secure and resilient nation. Success is defined as “a secure and resilient Nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.”<sup>103</sup> A review of the NPG’s description of core capabilities does not describe the role of resilience. The NPG describes the traditional post-9/11 mission areas of prevent, protect, mitigate, respond, and recovery.<sup>104</sup> The NPG establishes core capabilities for the homeland security enterprise. The core capabilities contained within the NPG build upon the Target Capabilities developed during the Bush Administration era of DHS. Within the core capabilities, three are identified as common capabilities that touch each of the mission areas: planning, public information and operational coordination. The remaining core capabilities are contained within specific mission areas.

Although the NPG is to maintain a secure and resilient nation, only two core capabilities mention resilience. Those capabilities are identified as community resilience, and risk and disaster resilience assessment. Community resilience is described as the integration of efforts to comprehend and address risk through a planning process of setting actions to mitigate and improve resilience.<sup>105</sup> Risk and disaster resilience assessment is described as the capability to conduct risk and disaster assessments as a means of developing informed action of risk reduction and the enhancement of resilience within the jurisdiction.<sup>106</sup> These two specific capabilities have been assigned to the mission area of mitigation.

Core capabilities are used in program guidance issued by FEMA. Grant guidance requires state and Urban Area Security Initiative (UASI) jurisdictions use core

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<sup>103</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, *National Preparedness Goal* (Washington, DC: Department of Homeland Security, 2011), 1.

<sup>104</sup> *Ibid.*

<sup>105</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, “Core Capabilities,” (n.d.), <http://www.fema.gov/core-capabilities>.

<sup>106</sup> *Ibid.*

capabilities as part of the jurisdiction's THIRA.<sup>107</sup> Although the NPG defines core capabilities and offers minimal definitions, the document does not emphasize the role of resilience throughout the enterprise. Core capabilities imply that resilience is a function of the mitigation mission area. The lack of clarity and focus on resilience in the core capabilities creates additional confusion in determining what resilience might be in the context of homeland security.

The categorization of core capabilities into mission areas hampers the selection of appropriate capabilities to a specific scenario or desired outcome. The negative influence of the core capabilities was observed during the preparation of Louisiana's 2012 THIRA. Participants appeared to focus on the mission area rather than the core capability. Mission areas created a default setting in which planning scenarios were linked to a mission area rather than a core capability. Future versions of the core capabilities should consider the removal of mission areas.

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<sup>107</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, "Comprehensive Preparedness Guide (CPG) 201," April 2012, <https://www.hsdl.org/?view&did=705408>.

Table 4. Core Capabilities identified by the Federal Emergency Management Agency<sup>108</sup>

<b>Core Capability</b>	<b>Mission Area</b>	<b>Core Capability</b>	<b>Mission Area</b>
Planning	All	Threat and Hazard Identification	Mitigation
Public Information and Warning	All	Critical Transportation	Response
Operational Coordination	All	Environmental Response/Health and Safety	Response
Forensics and Attribution	Prevention	Fatality Management Services	Response
Intelligence and Information Sharing	Prevention, Protection	Infrastructure Systems	Response and Recovery
Interdiction and Disruption	Prevention, Protection	Mass Care Services	Response
Screening, Search, and Detection	Prevention, Protection	Mass Search and Rescue Operations	Response
Access Control and Identity Verification	Protection	On-scene Security and Protection	Response
Cybersecurity	Protection	Operational Communications	Response
Physical Protective Measures	Protection	Public and Private Services and Resources	Response
Risk Management for Protection Programs and Activities	Protection	Public Health and Medical Services	Response
Physical Protective Measures	Protection	Situational Assessment	Response
Supply Chain Integrity and Security	Protection	Economic Recovery	Recovery
Community Resilience	Mitigation	Health and Social Services	Recovery
Long-term Vulnerability Reduction	Mitigation	Housing	Recovery
Risk and Disaster Resilience Assessment	Mitigation	Natural and Cultural Resources	Recovery

<sup>108</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, “Core Capabilities.”

## **F. STEP 5: THREAT HAZARDS IDENTIFICATION AND RISK ASSESSMENTS (THIRA)**

Flour is a critical ingredient to making a roux. The amount of flour used in a roux is equal to one third of the total ingredients and serves as a binding agent. Within the context of resilience and homeland security, state and local governments serve as the binding agent. Just as a roux cannot be made without flour, national resilience cannot be achieved without the participation of an equal partner, such as state and local governments. The THIRA process introduces state government and UASIs into this process. PPD-8 establishes a requirement to conduct a national risk assessment process. This requirement is assigned to the Secretary of DHS who through FEMA requires state and UASI jurisdictions who accept federal financial assistance to conduct a THIRA.<sup>109</sup>

As of the 2012 reporting period, jurisdictional THIRA documents were required to be submitted in conjunction with the State Preparedness Report (SPR). Data collected through the THIRA and SPR process are then used to develop the National Preparedness Report (NPR). The format used to conduct a THIRA is based on a combination of hazard mitigation, emergency management, and prevent/protect mission areas.

The SPR focuses on the present capabilities of the jurisdiction. Several gaps in the SPR tool were identified during the development of Louisiana's 2012 SPR. One gap is a lack in practitioner knowledge regarding the use of this information as a means of influencing resilience. A second gap is the recognition that revisions to existing policies and programs have not kept pace with concepts recently introduced by FEMA. Existing federal preparedness and hazard mitigation funding requirements hinder the ability of state and local jurisdictions to use adaptive or collaborative approaches to addressing threats, hazards and gaps identified in the THIRA or SPR. As an example, many mitigation or preparedness grant programs do not support new construction to address mass care and sheltering deficiencies. These requirements inhibit the ability of communities to construct facilities capable of supporting evacuees during major

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<sup>109</sup> Timothy Manning, *Threat and Hazard Identification and Risk Assessment Requirement: Grant Programs Directorate Information Bulletin no. 385* (Washington, DC: United States Federal Emergency Management Agency, 2012).

disasters.<sup>110</sup> Obtaining a NPG of a secure and resilient nation requires significant revisions to existing laws and policies of FEMA regarding the use of federal funds. Updating these requirements will enhance the adaptability and resilience of local communities.

#### **G. STEP 6: MEASURING PREPAREDNESS AND RESILIENCE**

No established time frame exists to cooking a roux. The final product is observed when a combination of colors and smells indicate the presence of a roux. The process of cooking a roux requires patience and a process to monitor progress to achieving the goal. The success of a roux depends on the techniques of the cook. Although the success of roux requires the same metrics and techniques, the end result varies based upon the technique of the cook. As indicated in the literature review, measuring the progress of national preparedness has been the subject of numerous reports of GAO and the U.S. Congress.

In January 2010, the U.S. Congress enacted the *Redundancy Elimination and Enhanced Performance for Preparedness Grants Act*.<sup>111</sup> HR 3980 required the FEMA Administrator to develop performance metrics to measure national preparedness through an evaluation of local and state governments receiving federal preparedness financial assistance. Since the establishment of the U.S. DHS, 27 plus billion dollars have been invested into the development of capabilities at the state and local levels of government.<sup>112</sup> The GAO has identified a significant failure of the U.S. government to measure the effectiveness of this investment.<sup>113</sup>

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<sup>110</sup> President's Homeland Security Advisory Council (U.S.), Community Resilience Task Force, *Community Resilience Task Force Recommendations*, 59.

<sup>111</sup> United States, Congress, Senate, Committee on Homeland Security and Governmental Affairs, *Redundancy Elimination and Enhanced Performance for Preparedness Grants Act: Report of the Committee on Homeland Security and Governmental Affairs, United States Senate to Accompany H.R. 3980, to Provide for Identifying and Eliminating Redundant Reporting Requirements and Developing Meaningful Performance Metrics for Homeland Security Preparedness Grants, and for Other Purposes* (Washington, DC: U.S. Government Printing Office, 2010).

<sup>112</sup> Ibid.

<sup>113</sup> Ibid.

In March 2011, GAO testified that FEMA and DHS have failed to develop a process to measure preparedness.<sup>114</sup> The failure to establish a formal process to measure preparedness has haunted FEMA and DHS since 2002. GAO has consistently reported to Congress since 2002 that FEMA has failed to develop a process to measure preparedness.

In reviewing a variety of GAO and Congressional resources related to measuring preparedness, it was determined that opportunities, such as the Target Capabilities List, Comprehensive Preparedness Guide 101, PPD-8, and the Cost to Capabilities Initiative, failed to produce an effective set of metrics to evaluate community preparedness. Broughton's research into the evaluation of federal preparedness programs supports the actions taken by the U.S. Congress outlined within HR 3980 and the claims made by GAO. The prior resources recognize the difficulty of state and local governments to apply the NPG to preparedness investments made by these organizations.<sup>115</sup> GAO and Broughton confirm the absence of evaluation metrics to measure how equipment, training, planning, and exercises supported by federal preparedness funds have improved the capabilities of local and state organizations and reduced the risk to the people of the United States. The concepts of preparedness and resilience are not a one size fits all approach to emergency management or homeland security. Metrics might offer insight into the capabilities of a jurisdiction; however, those capabilities cannot be accurately displayed or measured in the absence of adversity.

The U.S. Department of Health and Human Services (DHHS) through the Centers for Disease Control and Prevention (CDC) administer a series of public health preparedness grants to local and state health departments. A review of legislation related to FEMA and the CDC identifies differences in the management of federal preparedness funds distributed by these two federal agencies. CDC is authorized to withhold funding to local and state jurisdictions that fail to meet critical benchmarks.<sup>116</sup> CDC's ability to

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<sup>114</sup> U.S. Government Accountability Office, *Measuring Disaster Preparedness: FEMA Has Made Limited Progress in Assessing National Capabilities* by William O. Jenkins Jr., (GAO-11-2607), (Washington, DC: GPO, 2011).

<sup>115</sup> Pamela N. Broughton, "Measuring Preparedness: Accessing the Impact of the Homeland Security Grant Program" (master's thesis, Naval Postgraduate School, 2009).

<sup>116</sup> Brian M. Stecher, *Toward a Culture of Consequences: Performance-Based Accountability Systems for Public Services* (Santa Monica, CA: Rand Corporation, 2010), 235.

withhold federal funds from state and local jurisdictions is established within the *Pandemic and All Hazards Preparedness Act of 2006*.<sup>117</sup> In contrast, similar authority has not been given to FEMA.

In August 2011, the U.S. Council of the International Association of Emergency Managers (IAEM) issued a report entitled *Preparedness: A Principled Approach to Return on Investment*.<sup>118</sup> The purpose of this report was to provide recommendations to determining the return on investment related to the Emergency Management Performance Grant. IAEM suggests that the recommendations included within this report should be used as a baseline to develop performance metrics for other preparedness programs sponsored by the U.S. federal government.

Consideration must be given to the integration of all federal preparedness grant programs into one consolidated approach to sustaining resilient communities. This approach will build capabilities through a Whole Dollar approach to federal preparedness, disaster recovery and mitigation spending. The NPG defines success as “a secure and resilient Nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.”<sup>119</sup> The inability of the federal government to develop preparedness-based performance metrics suggests that the development of resilience-based metrics will be problematic.

## **1. Measuring Resilience**

The demand to measure preparedness and determine a return on investment is influencing a desire to develop metrics to measure the resilience of communities. Rather than attempt to develop processes to measure resilience, a viable option is strengthening the process of measuring preparedness as directed by the *Elimination and Enhanced*

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<sup>117</sup> Stecher, *Toward a Culture of Consequences: Performance-Based Accountability Systems for Public Services*, 235.

<sup>118</sup> International Association of Emergency Managers, *Preparedness: A Principled Approach to Return on Investment* (Falls Church, VA: International Association of Emergency Managers, 2011).

<sup>119</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, *National Preparedness Goal*.



*Performance for Preparedness Grants Act* and the *Pandemic and All Hazards Preparedness Act of 2006*. An assumption determined from this analysis is that a prepared jurisdiction is a resilient jurisdiction. Validating this assumption negates the need to develop an additional set of metrics to determine the resilience of a jurisdiction. A need exists to realize a return on the federal government's investment into the homeland security enterprise. The use of the term metrics implies a guarantee that a jurisdiction has demonstrated a capability. An alternative is the use of the term indicator rather than metric. In the absence of an adverse condition requiring the application of the capability, the return on investment cannot be actualized by a set of metrics based on a subjective review. Exercises, training, and reviews of emergency guidelines and plans indicate that a jurisdiction has the capability; however, the metric of success is realized once the system has applied the capability under adverse conditions.

Ungar suggests that the level of resilience achieved by an individual or community is subjective and dependent upon a variety of factors.<sup>120</sup> Presuming that resilience is a process of adaptability rather than a continuum or cycle, no apparent baseline for resilience exists other than the conditions that existed prior to the exposure to adversity. Cutter suggests that metrics are established to identify the baseline indicators of resilience.<sup>121</sup> The difficulty of establishing formal processes to measure resilience is based on the premise that resilience occurs at various levels of a community and is influenced by any combination of complex issues occurring within the environment. Resilience is based on the severity of the stressor and the cascading effects of the event.

Measuring resilience is a complex issue requiring a clear understanding of the role and function of resilience within the homeland security enterprise. Ungar suggests that within the context of psychology, resilience is often measured using a standard set of outcomes relevant to those conducting the measurement.<sup>122</sup> Failure to recognize the cultural dynamics of the individual and the ecological system in which the individual

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<sup>120</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*, 463.

<sup>121</sup> Susan L. Cutter, Christopher Burton and Christopher Emrich, "Disaster Resilience Indicators for Benchmarking Baseline Conditions," *Journal of Homeland Security and Emergency Management* 7, no. 1 (2010): art. 51.

<sup>122</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*, 15.

operates influences the outcome of the measurement. It has been said that a person can only measure what is known. Due to the complexities and variations of resilience that occur in the homeland security enterprise, a single metric of resilience may not exist within the enterprise.

Measuring resilience in any of the contexts described thus far in this thesis is difficult. Prior research based on measuring the resilience of individuals obtained from the field of psychology offer several considerations for the homeland security practitioner. The first consideration maintains that a de-emphasis on the ecological effects of resilience results in an ineffective measurement of resilience. Implementing this consideration requires an approach that recognizes the complexities and inner dependencies of resilience within the context of homeland security. If resilience is to be demonstrated post-adversity, measuring resilience requires a system to experience a significant stressor or adversity.<sup>123</sup> The introduction of the stressor creates an environment that would not have existed in the absence of the stressor.<sup>124</sup> Based on this premise, resilience in the context of psychology or government policy, such as homeland security “cannot be viewed as a trait that is open to direct measurement.”<sup>125</sup>

#### **H. HOMELAND SECURITY ADVISORY COMMITTEE-COMMUNITY RESILIENCE TASK FORCE RECOMMENDATIONS**

In the winter of 2010, Secretary of the Department of Homeland Security, Janet Napolitano, established the Community Resilience Task Force (CRTF) as a component of the Homeland Security Advisory Committee. The CRTF was tasked with providing recommendations to establish and implement resilience policies, programs, and practices throughout the nation.<sup>126</sup> The CRTF developed a conceptual framework for resilience

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<sup>123</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*, 15.

<sup>124</sup> Ibid.

<sup>125</sup> Ibid., 34.

<sup>126</sup> President’s Homeland Security Advisory Council (U.S.), Community Resilience Task Force, *Community Resilience Task Force Recommendations*, 59.

that illustrated the relationships between the functions of resilience, preparedness, and risk reduction. The following recommendations of the CRTF apply to the clarification of resilience.<sup>127</sup>

Table 5. Relevant Recommendations from the CRTF

Recommendation 1.1 Build a Shared Understanding of the Shared Responsibility	Recommends the development and sharing of resilience models to illustrate resilience within those environments
Recommendation 1.2: Build a Coherent and Synergistic Campaign to Strengthen and Sustain National Resilience	Recommends the alignment of resilience policies, programs, and investments as a way of achieving operational resilience
Recommendation 1.3: Organize for Effective Execution	Through the establishment of a National Resilience Office within the Department of Homeland Security, build a foundation for resilience based upon the Quadrennial Homeland Security Review
Recommendation 1.4 Build the Knowledge and Talent Base for Resilience	Through the development of a research program, build an intellectual base for the development of resilience based training and education programs
Recommendation 3.2: Align Federal Grant Programs to Promote and Enable Resilience Initiatives	Through the development of a Resilient Community Initiative (RCI), leverage federal assets to enable community resilience

The CRTF Report views resilience as a desired outcome or goal that persists through each of the broad areas of homeland security. Sub-factors of resilience are identified as the abilities to resist, absorb, recover, and adapt.<sup>128</sup> According to the CRTF, these sub-factors “contribute to the overall degree of resilience and provide useful targets

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<sup>127</sup> President’s Homeland Security Advisory Council (U.S.), Community Resilience Task Force, *Community Resilience Task Force Recommendations*, 59.

<sup>128</sup> Ibid.

for measures implemented to enhance resilience.”<sup>129</sup> The CRTF divides overall preparedness activities into three phases: before, during, and after. The previously discussed sub-factors of resilience are applied to one of three phases and describe the desired outcomes for the phase. As an example, the CRTF report suggests, “Recovery capabilities support a return to normalcy or adaptation to a new norm which may mitigate future impacts.”<sup>130</sup> As indicated in the document, “...PPD-8 describes resilience as ‘the ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies.’”<sup>131</sup> The CRTF implied that resilience within the context of homeland security is a foundational concept of the enterprise. The task force believes that the previously described conceptual framework links a number of homeland security strategies to resilience.

The work of the CRTF attempts to clarify the concept of resilience in the context of homeland security. The outcomes of the task force provide a strategic level document describing the linkages between the various nodes of the homeland security enterprise and resilience. If implemented, the recommendations of the CRTF offer a broad base of policy recommendations. The recommendations of the CRTF apply the concept of resilience as an approach to homeland security. The applications of the recommendations provided by the CRTF are discussed in further detail in Chapter V.

## **I. CHAPTER SUMMARY**

This chapter narrowed the focus of resilience from the broader contexts described in Chapter II. Narrowing the focus of resilience is accomplished through a review and critique of existing policies directly impacting homeland security programs at the local, state, and federal levels of the U.S. In the context of the policies reviewed in this chapter, the U.S. federal government emphasizes the importance of resilience as a foundation of the homeland security enterprise. The analysis conducted in this chapter concludes with several observations. The first observation is that the NSS refers to resilience as a

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<sup>129</sup> Ibid., 9.

<sup>130</sup> President’s Homeland Security Advisory Council (U.S.), *Community Resilience Task Force, Community Resilience Task Force Recommendations*, 9.

<sup>131</sup> Ibid., 12.

foundation of the homeland security enterprise, while the QHSR recognizes that the concept is influenced by the emergency management legacy of the enterprise. The second observation is that the enterprise has and continues to struggle with the development of metrics or indicators to determine a value of the return on investment. In an attempt to address this issue, the enterprise has developed a series of core capabilities categorized into specific mission areas. Although core capabilities are important to the enhancement of the enterprise, the use of mission areas to categorize these capabilities hinders the full application of the tool by the homeland security practitioner. The third observation recognizes the value of the recommendations provided by the CRTF to clarify the concept of resilience in the context of homeland security.

This thesis continues to clarify resilience by exploring the concept in various contexts. Chapter II introduced this concept in a broad context. In Chapter III, the magnification was increased to narrow the focus through the exploration of resilience in the context of homeland security policies of the U.S. The system known as the homeland security enterprise of the United States is complex. The validation of resilience as a complex system and the identification of factors that influence the concept will further clarify the issue for the homeland security practitioner.

## **IV. INFLUENCES ON RESILIENCE**

In the previous chapter, the steps to preparing a roux are used as a guide to explore the relationship between homeland security-based policies and resilience. Many outside of Louisiana presume that the creation of a gumbo requires a consistent set of ingredients and processes. To the contrary, the process of preparing a gumbo is influenced by the culture of the area, available resources, expectations of the consumer, and the time available to prepare the dish. A roux alone does not make a gumbo. Preparing a gumbo is a continual process of synthesizing flavor, ingredients, experiences, and interaction. Each ingredient influences the outcome and appearance of the gumbo. The time to prepare a gumbo will differ from prior versions. The outcome is influenced by the cook's ability to learn from past experiences and the application of those lessons to the preparation of the dish. The same can be said of resilience in the context of homeland security. Resilience differs from individual to individual, community to community, and disaster to disaster.

This chapter analyzes prior research conducted in the fields of systems engineering and psychology. Based upon the assumptions and evaluation criteria established in Chapter I, research for this chapter is limited to existing resources obtained from the fields of systems engineering and psychology. The rationale for this decision is based upon several reasons. First, the theories of complexity and complex adaptive systems are based in the contexts of systems engineering and psychology. The theories of complexity and complex adaptive system of systems are applicable to the physical domain of the enterprise. Second, the psychological models examined as part of this research are based on an approach to understanding the social complexities of resilience. Thus, these models are applicable to the social domain of the enterprise. Third, these areas of research recognize the relationship between complexity and resilience. Navigating through the complexities of resilience requires an understanding of adaptability and those factors that influence resilience.

FEMA's Strategic Foresight Initiative (SFI) introduces the concept of foresight capability as a means of forecasting and understanding the future. Complexity and the role of adaptive capacity can be used to understand resilience. This chapter focuses on identifying factors that contribute to the development of adaptive capacity.

The SFI and the QHSR indicate that the homeland security enterprise is comprised of several domains. Those domains are physical, social, and cyber. This chapter focuses on the first two domains and explores the relationship between these domains and the concept of resilience in the context of homeland security.

The vision of resilience is influenced by a number of factors contributing to the adaptability of the enterprise. The upcoming factors constantly change throughout the lifespan of the enterprise. The development of adaptive capacity is influenced by the interactions and experiences of the enterprise that occur over a lifespan.

#### **A. LOOKING THROUGH A LENS TO SEE THE FUTURE-FEMA'S STRATEGIC FORESIGHT INITIATIVE**

One recommendation to clarify what resilience might be within the context of homeland security is to forecast the future. In January 2012, FEMA released a document entitled, *Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty (SFI)*. The SFI projects a vision of emergency management in the future and introduces the term foresight capability.<sup>132</sup> Foresight capability is defined as the ability to "consider a broad spectrum of plausible outcomes to help inform decision making under certain circumstances."<sup>133</sup> The goal of the SFI is to establish and maintain a foresight capability to shape the vision and needs of the emergency management community in the year 2030.

The SFI identifies several factors to shaping the vision and future appearance of the emergency management community. Those factors include hedging against uncertainty, avoiding strategic surprises, promoting information sharing across

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<sup>132</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, *Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty* (Washington, DC: Federal Emergency Management Agency, 2012).

<sup>133</sup> Ibid.

disciplines and organizations, understanding what changes could affect emergency management, and the preparation and planning to enhance capabilities to operate in future environments effectively.<sup>134</sup> Each of the prior factors has a direct relationship to determining what resilience might be in the context of homeland security. The SFI is described as “a lens through which to view our future landscape and the actions we as a community need to take to be successful.”<sup>135</sup> It is through this lens of the SFI that resilience within homeland security begins to take shape.

The SFI infers that resilience is promoted by not only embracing a foresight capability, but through the development of adaptive capabilities in the emergency management community. The need to develop adaptive capabilities is based on “increasing complexity and decreasing predictability in its operating environment.”<sup>136</sup> Complexity continues to emerge as a significant issue within the homeland security enterprise. Increasing frequencies of disasters, the emergence of complex threats, and advances in technology influence the means of collecting data adding to the complexity of the enterprise.<sup>137</sup>

The role and function of the emergency manager will continue to adapt to the ever-changing environment of emergency management. The SFI focuses on the future of the emergency management community. Minimal references within the SFI describe the future integration of emergency management and the homeland security enterprise.<sup>138</sup>

## **1. The Future Through the Dimensions of STEEP**

The approach taken to create the SFI included representatives from the emergency management community at large, the development of scenarios, and the development of 15 strategic needs for the emergency management community. As the SFI indicates,

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<sup>134</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, *Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty*.

<sup>135</sup> *Ibid.*, 2.

<sup>136</sup> *Ibid.*

<sup>137</sup> *Ibid.*

<sup>138</sup> Douglas Paton and David Moore Johnston, *Disaster Resilience: An Integrated Approach* (Springfield, IL: Charles C. Thomas, 2006), 321.



“These strategic needs identify what the emergency management community needs to be successful in future environments-needs that should inform priorities, investments, and decisions on the part of emergency managers.”<sup>139</sup> From a strategic perspective, the SFI identified five dimensions known as STEEP. Those dimensions include social, technological, environmental, economic and political. These five dimensions were redefined as drivers of the future emergency management community.

Table 6. Emergency Management Drivers Identified in the Strategic Foresight Initiative<sup>140</sup>

<p><b>Social</b> Emergency managers will have new capabilities in the future, and the people who rely on their services will have different needs and expectations, requiring new pathways for engaging these diverse communities and building greater ‘resilience’ to disasters throughout the nation.</p> <p><b>Technological</b> Technological innovation and the public’s evolving expectations of government are fundamentally altering how individuals interact with society-leading to a redefinition of community</p> <p><b>Environmental</b> Climate change will increase the magnitude and frequency of natural disasters, which will affect the resilience of local communities and the operational demands placed on emergency management systems. These issues will impact mitigation, preparedness, response, and recovery operations; resiliency of critical infrastructure and various emergency assets; trigger indirect impacts such as population displacement, migration, and public health risks.</p> <p><b>Economic and Political</b> Global interdependencies/globalization, government budgets, critical infrastructure, and the evolving terrorist threat will significantly impact the future of emergency management.</p>
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<sup>139</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, *Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty*.

<sup>140</sup> Ibid., 7–10.

The drivers identified by the SFI were used to build a series of scenarios offering an opportunity to experiment with each driver. The intent of these scenarios was to determine the potential consequences of an individual driver. The outcome of the scenario play is the identification of a combination of interactions between individual drivers that resulted in the identification of strategic drivers. Upon completion of the scenario play, the SFI team analyzed the results and identified three categories of need (Table 6). These three categories of need factor into determining what resilience might be in the future. The needs identified in the SFI offer a starting point to develop training and education programs related to strengthening adaptive capacity. The previously discussed dimensions and needs are consistent with several recommendations made by the CRTF.

Table 7. Needs Identified by the Strategic Foresight Initiative<sup>141</sup>

<p><b>Essential Capabilities</b> What capabilities will communities need to create or enhance based on these future challenges?</p> <p><b>Innovative Models and Tools</b> What innovative models and tools will be needed to optimize resources, anticipate events, or deal with complex and/or unprecedented problems?</p> <p><b>Dynamic Partnerships</b> What dynamic partnerships will be required to meet surge needs or absorb critical new skills and abilities?</p>
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## 2. A Link Between the SFI and the QHSR

The QHSR speaks to an area identified as “enhancing domain awareness.” Enhancing domain awareness is described as the ability to “Ensure shared situational awareness in the air, land, and maritime domains.”<sup>142</sup> The topic of domain awareness is capable of being expanded to include two domains of resilience. Those two domains are the social and physical domains. Social resilience is based on a focus of resilience in

<sup>141</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, *Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty*, 12.

<sup>142</sup> U.S. Department of Homeland Security, *Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland*, 68.

society that includes individual and community resilience. Physical resilience within the context of homeland security is based on a focus of resilience rooted in critical infrastructure. Understanding and building a concept of adaptive capacity requires that homeland security practitioners establish processes to enhance domain awareness across and between the domains of resilience. The dimensions of STEEP offer an opportunity to step out of these pre-defined domains and into a clearer dimension of resilience.

### **3. Resilience Might Be Looking Through a Telescope and a Microscope**

Strategic focus and foresight capability projects a view of the future. As a critique, the SFI does not provide any value to the present need of clarifying resilience in the context of homeland security. The SFI identifies the concept of “future thinking” within the emergency management community as a means of producing tangible benefits. Determining what resilience might be requires a telescopic view into the future through the lenses of foresight capability. It also requires a microscopic view of the threats and risks of today.

Describing the concept of resilience in the context of homeland security is a difficult task for the homeland security practitioner. Minimal literature exists describing this concept outside of academic research context. As demonstrated in Chapter II, the concept of resilience is found in a variety of contexts. The lack of a practitioner level description of resilience combined with the various contexts identified in prior chapters of this thesis impacts the practitioner’s ability to develop a vision of resilience. Developing a vision of resilience not only requires foresight, but also retrospection and an appreciation for the present. The remainder of this chapter focuses on complexity and the identification of factors that influence resilience.

## **B. THE RELATIONSHIP BETWEEN COMPLEXITY AND RESILIENCE**

Complexity exists in each of the theoretical domains of the homeland security enterprise. The sciences of psychology and systems engineering contribute to clarifying the concept of resilience in the context of homeland security. Contributions from systems engineering enhance the understanding of resilience as a complex adaptive system of systems, while the contributions obtained from the field of psychology identify factors

that influence resilience. The relationship between complexity and resilience is described as a framework for organizing and understanding how communities and the nation might “beat the odds” and develop their own capacities and competence.<sup>143</sup>

### C. RESILIENCE THROUGH THE LENS OF COMPLEX ADAPTIVE SYSTEMS OF SYSTEMS

Research conducted by Sandia Laboratories on the concept of Complex Adaptive System of Systems (CASoS) determined that complexity is a combination of physical-socio-technical systems.<sup>144</sup> Sandia’s determination is consistent with the domains of resilience identified by the SFI and the QHSR. Classifying resilience as a CASoS is based on the following qualities provided by Sandia Laboratories.<sup>145</sup>

- **System:** A set of entities, real or abstract comprising a whole in which each component interacts with or is related to at a minimum one other component.
- **System of Systems:** Some of the entities comprising the system are themselves systems.
- **Complex:** The system exhibits an emergent behavior that arises from inter-relationships between its elements. This behavior is of greater complexity than the sum of behavior of its parts and not due to system complications.
- **Adaptive:** The system is adaptive; the behavior of entities or sub-systems and their interaction change in time, possibly resulting in a change in the way the entire system relates to the environment.

The evaluation of the prior qualities determined that the concept of resilience in the context of homeland security is a CASoS based upon the following points.

- **Resilience qualifies as a system.** Resilience can only exist as a system.
- **Resilience qualifies as a system of systems.** The existing domains of physical and social resilience, as well as the STEEP dimensions previously mentioned in this chapter provide evidence to support this determination.

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<sup>143</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*.

<sup>144</sup> Robert J. Glass et al., *Sandia National Laboratories: A Roadmap for the Complex Adaptive Systems of Systems CASoS Engineering Initiative* (Albuquerque, NM: Sandia National Laboratories, 2008), 6.

<sup>145</sup> *Ibid.*, 9.

- **Resilience qualifies as complex.** This determination is based on the existence of an emergent behavior. Emergent behaviors are created by a disaster or terrorist event. As Madia indicated, responding to these types of events creates a complex environment.<sup>146</sup>
- **Resilience qualifies as being adaptive.** Resilience is based on the adaptability of systems to adversity. Meeting this qualifier requires that through behavior modifications and the interaction of systems or sub systems the system will change its relationship with the environment.

#### **D. RESILIENCE IS INFLUENCED BY ADAPTATION**

Adaptation to adversity is recognized in the contexts of systems engineering and psychology as a means to navigate through complexity. Within the context of homeland security, documents, such as the *National Security Strategy*, *Presidential Policy Directive-8*, *the National Preparedness Goal*, and *Whole Community*, imply that adaptation is a critical element of resilience.<sup>147,148</sup> Lipsitt and Demick identify several dimensions, such as context, exposure to adversity, significant adversity, the capacity of individuals, and functioning normally.<sup>149</sup> Each dimension is viewed as a system that creates a capacity for resilience. Adversity is a necessary condition of resilience that is either unfriendly or hostile. Significant adversity is described as a condition in which most of the exposed systems would collapse or stop functioning. Resilience exists after a community or nation has been exposed to adversity.

Resilience is a process of adaptive functioning. The ability to function adaptively during adversity depends on the character of the system as well as the influences of process and interaction with others of significance and the wider social context.<sup>150</sup>

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<sup>146</sup> Madia, “Homeland Security Organizations: Design Contingencies in Complex Environments,” 105.

<sup>147</sup> The White House, *National Security Strategy*, 4.

<sup>148</sup> U.S. Department of Homeland Security, Federal Emergency Management Agency, “Whole Community.”

<sup>149</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*.

<sup>150</sup> *Ibid.*, 143.

## **1. Resilience is a Process of Adaptation**

Resilience is a process of improvement based on adaptation. No definable end point to the process of resilience exists. Resilience is not a strategy or a policy of the homeland security enterprise; it is a vision of the enterprise. Sanders, Munford, and Liebenberg recommend that individual resilience policies be based on a concept of complex adaptive systems.<sup>151</sup> Policies should be less restrictive and encourage communications between all parties including the community.<sup>152</sup> Policy makers should understand that the implementation of strict policies would hinder rather than promote adaptive capacity. Resilience is influenced by environmental conditions. Variations in environmental conditions change the vision and perception of resilience based upon the individual, the community, and the adversity. Policy influences the sketch of resilience; however, the final image of the portrait of resilience is best left to the determination and control of those impacted by the adversity.

This previous viewpoint introduces a consideration to the discussion of resilience-based policies of federal, state, and local governments. Resilience is a vision of homeland security rather than a policy of the enterprise. The approach to obtaining this vision will not occur by policy alone.

Resilience in the context of homeland security is a lifelong process influenced by social and physical ecological systems or a process of immediate or short-term adaptation to an adverse condition.<sup>153</sup> Immediate or short-term adaptation returns the individual or community to environmental conditions similar to those that existed prior to the adversity. Resilience is based upon the individual or community's ability to continually adapt. In the long term, resilience is not hitting the reset button or CONTROL, ALT, DELETE after a disaster. Resilience is a process of continually adapting to stressors placed upon the system throughout the lifespan of the system.

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<sup>151</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*, 241.

<sup>152</sup> Ibid.

<sup>153</sup> Ibid., 2.

## **2. Resilience Is Influenced by Interaction**

Ungar emphasizes the relationship between the individual and the environment in which the individual lives. Resilience is a result of the complex interactions of environmental factors.<sup>154</sup> The role of interaction is important to clarifying the concept of resilience in the homeland security context. Interaction requires an understanding of how relationships between systems will influence each other at different points in a process.<sup>155</sup>

The process of interaction aids in understanding the relationships between individuals, social groups, political, and economic systems. Existing homeland security and emergency management training does not adequately address the building of a capability to identify or work through these interactions and linkages. Potential reasons for this lack of training include the age of the homeland security enterprise, and the non-existence of an approach to developing a vision of resilience.

Within the homeland security context, resilience is a process that varies based upon the experiences of the individual and the community.<sup>156</sup> Key concepts to the sustainment or enhancement of resilience include the capability to negotiate, manage, and adapt to stress and/or trauma using assets and resources available within the individual and environmental systems.<sup>157</sup> The building of this capability is influenced by a synthesis of prior experiences and interaction. The first gumbo prepared by the novice cook is always the worst. Subsequent attempts to prepare a gumbo are improved by the prior experiences and interactions of the novice cook.

The homeland security practitioner should understand the influence of psycho-immunization on resilience.<sup>158</sup> This concept of psycho-immunization is explained as lessening the impact created by stressors based on a combination of past experiences combined with social support. The outcome of this process is the creation of a coping

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<sup>154</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*, 1.

<sup>155</sup> *Ibid.*, 237.

<sup>156</sup> *Ibid.*, 219.

<sup>157</sup> *Ibid.*

<sup>158</sup> *Ibid.*

capacity for the individual when faced with adversity.<sup>159</sup> Ungar defines resilience as a set of behaviors influenced by an interaction between the individual and the environment.<sup>160</sup> This interaction creates opportunities for the steady growth of the individual to withstand adversity. The result of psycho-immunization is the inoculation of individuals and communities to future events based upon a prior exposure to a similar adversity.

The evolution of the homeland security enterprise is an example of a process of interaction and psycho-immunization. The origins of the enterprise are based on a desire to protect the homeland from terror threats. As discussed in Chapter III, recent homeland security policies and initiatives expand the mission area from terrorism to an all hazards approach. Existing policies emphasize this concept of resilience. Within the U.S. the homeland security policies discussed in Chapter III influence the interaction between the citizen and government. Past experiences that influence the concept of resilience are based upon the historical narrative of the United States. When combined, the processes of interaction and experience influence the planning and preparedness efforts of the homeland security enterprise. Clarifying resilience requires an understanding of how past experiences influence the interaction between government policy and homeland security.

#### **E. RESILIENCE IS INFLUENCED BY THE HISTORY AND “STEELING” OF THE UNITED STATES**

Repetitive exposure to adversity at any level creates a “steeling” effect upon the individual and the community. This concept of “steeling” applies to not only the science of psychology, but also to the homeland security enterprise. Exposure to adversity produces coping strategies and redefines the negative experience. A “coping” strategy does not imply a positive or negative response to adversity. The individual and the community both develop strategies to cope with adversity. The following examples demonstrate how government develops strategies to cope with adversity. These examples are based on a retrospective approach rather than an approach based upon foresight or adaptive capacity.

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<sup>159</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*, 219.

<sup>160</sup> *Ibid.*, 14.



Adverse situations, such as the Mississippi River Flood of 1927, Three Mile Island, the Oklahoma City Bombing, 9/11, the anthrax attacks of 2001, and Hurricane Katrina, have created policies and practices to psycho-immunize citizens against similar types of events. The intent of the previously mentioned retrospective policies is to develop government-supported immunities to future stressors upon the community. The prior examples have strengthened the resilience of America, while at the same time, enhanced the complexity of existing adaptive systems through mandates and reforms. Each of these historical milestones have left marks, and in some instances, blemishes on American society. These disasters have created opportunities for an emergent behavior to develop. That emergent behavior has evolved into the homeland security enterprise. The synthesis created between the previously mentioned disasters and policies has resulted in a “steeling” effect upon the nation. Each of the following events contributes to the concept of national resilience.

- The Mississippi River Flood of 1927 resulted in significant population shifts from the Mississippi Delta region of the United States. This event established the need to construct and strengthen a system of levees and control structures to prevent a similar event.
- Three Mile Island forced the integration of various federal agencies with emergency management responsibilities into the newly created FEMA.
- The Oklahoma City Bombing in 1995 served as the impetus for the Nunn-Lugar-Domenici Act that established the Office of Domestic Preparedness within the U.S. Department of Justice. Federal assistance authorized by the Nunn-Lugar-Domenici Act was provided to state and local governments to prepare for acts of terrorism. Preparedness programs, such as the Metropolitan Medical Response System and the National Domestic Preparedness Consortium, were created in response to the threat of weapons of mass destruction.
- The events of 9/11 served as the impetus for the largest reorganization of the federal government through the creation of DHS.
- The anthrax attacks that occurred in 2001 resulted in the enhancement of public health preparedness programs designed to protect the population from terrorist events using biological agents.
- The response to Hurricane Katrina, a possible victim of the complexities of government policies established post 9/11, served as the impetus for further government reform of emergency management and homeland security.

## **F. CHAPTER SUMMARY**

In a broad context, many outside of Louisiana would consider that gumbo is simply a roux based dish served with rice. However, when gumbo is discussed in the narrower context of a specific region of Louisiana, gumbo is not just gumbo. In the narrower context, gumbo is a synthesis of cultural identity, resources, and experiences. The process to create the synthesis of a gumbo varies from region to region and is based on the experiences and interactions of the cook. This chapter focuses on recognizing the various factors that influence resilience in the context of homeland security.

In Chapter II, the journey to learn about resilience at a macro level explored resilience in a variety of contexts and concluded that resilience is a process of adaptability to adversity. In other words, resilience is simply resilience. The next stop in this journey, Chapter III, magnified the focus to explore the concept of resilience in the context of homeland security policies and initiatives of the federal government of the United States. This current stop, Chapter IV, concluded that resilience is a foundation of the homeland security enterprise of the United States that is based on a variety of factors.

In this chapter, the focus was magnified to identify those factors that influence or contribute to the clarification of resilience in the context of homeland security. The magnification of focus was accomplished by synthesizing existing research obtained from the areas of systems engineering and psychology. The synthesis of information contributed to the clarification of resilience in the context of homeland security. Foresight and adaptive capabilities contribute to the development of the resilience sketch. The development of the resilience sketch requires the ability to foresee the challenges of the future, while at the same time, build adaptive capacities to current adversities. Various factors influence resilience in the context of homeland security. Clarifying resilience requires that the practitioner possess the capability to recognize these factors. This analysis concludes that resilience is a complex adaptive system of systems. Recognizing resilience in this context allows the practitioner to develop adaptive capabilities based upon the presumption that the concept is a continual process of adaptation influenced by interaction and experience.

Resilience is a dynamic and continual process of adaptation rather than a specific and singular event.<sup>161</sup> The prior determination is based on the differences in which citizens respond to the influences of an adverse condition. The influences of adversity vary and include both known and known systems. The prior historical events provide an example of resilience as a process of adaptability occurring over time.

In certain cases, single communities are impacted by catastrophic events. While, in other events, such as Hurricane Katrina and the Mississippi River Flood of 1927, disasters impact a large geographic area encompassing multiple communities and states.<sup>162</sup> Regardless of the scope of the disaster, each disaster influences the resilience of impacted individuals, communities, and the nation. Collectively, these events influence national resilience over the life span of the American enterprise.

Academic research alone will not clarify the concept of resilience within the context of homeland security. Clarifying the concept of resilience to the homeland security practitioner requires that the topic be introduced and applied to the domains of the enterprise. The recommendations and conclusions learned during this journey are applied in the following chapter.

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<sup>161</sup> Ungar, *The Social Ecology of Resilience: A Handbook of Theory and Practice*, 14.

<sup>162</sup> Flynn and Council on Foreign Relations, *The Edge of Disaster: Rebuilding a Resilient Nation*, 240.

## **V. APPLYING RESILIENCE IN THE CONTEXT OF HOMELAND SECURITY**

Resilience exists. Evidence supporting the existence of resilience is provided as part of this research. The prior chapters magnified the focus of the homeland security practitioner's view of resilience to define the "what is" of resilience. This chapter focuses on bridging the gap between the "what is" and the "how to" of resilience in the context of the homeland security enterprise.

This research intends to establish a transfer of resilience-based knowledge from the academic to the practitioner. The transfer of knowledge occurs through a process of clarification, introduction, and application. This chapter offers conclusions to clarify the concept of resilience in the context of homeland security, and introduces the concept as a foundational element of the enterprise. Finally, this chapter offers recommendations to apply the concept of resilience to the homeland security enterprise of the United States.

### **A. OVERVIEW OF RESEARCH**

The purpose of this research is to clarify the concept of resilience in the context of homeland security. Clarity is established through focus. For purposes of this research, focus is achieved by narrowing the context of resilience from a macro to a micro perspective. The first step in this process is the exploration of resilience in a broad context. The second step is the exploration of resilience in the context of existing homeland security policies and initiatives of the U.S. government. The third step of this process is the identification of factors that influence resilience in the context of the homeland security enterprise.

This journey began with a simple question. What benefits or contributions to the homeland security enterprise are obtained through the clarification of resilience? The conclusion is that resilience is a vision of the homeland security enterprise of the United States approached through a process of adaptability based on a synthesis of complexity, interaction, and experience. Although the main research question is simple, developing the answer requires an exploration of this emerging theory of resilience in the context of

homeland security. The exploration is guided by a set of subordinate questions. What is resilience in a broad non-sector specific context? What is resilience in the context of homeland security policies of the United States? What might resilience look like or be in the context of the homeland security enterprise? How might a sketch of resilience be developed in the context of the homeland security enterprise? These subordinate questions frame the research and outcomes of each chapter of this thesis.

What is resilience in a broad non-sector specific context? In Chapter II, it was determined that resilience exists in a variety of contexts. Although a common understanding of resilience exists between these contexts, the application of resilience varies between these examples. Based upon these findings, it was determined that a broad or macro understanding of resilience does not clarify the concept to the homeland security practitioner. Thus, additional research is required to clarify the role of resilience in the homeland security enterprise of the United States.

What is resilience in the context of homeland security policies of the United States? In Chapter III, it was determined that resilience is a key element of existing homeland security policies and initiatives of the federal government of the U.S. These policies indicate that the concept of resilience contributes to the foundation of the homeland security enterprise of the United States. Although a resilient nation is considered an outcome of the national preparedness goal of the United States, the documents reviewed in Chapter III contribute little to determining the homeland security practitioner's role in this concept of resilience.

What might resilience look like or be in the context of the homeland security enterprise? In Chapter IV, the focus on resilience is magnified to a micro level. At this level, resilience is observed as a complex adaptive system of systems influenced by a number of factors. The factors influencing resilience include foresight, adaptation, interaction, and experience. The identification of these factors clarify the concept to the homeland security practitioner and offer a means to bridging the gap between the "what is" and "how to" of resilience in the context of homeland security. The remainder of this chapter focuses on answering the following research question.

## **B. WHAT IS RESILIENCE IN THE CONTEXT OF HOMELAND SECURITY?**

Clarifying resilience requires an understanding of the concept in the context of the homeland security enterprise. Presently, the application of resilience in the context of homeland security is based upon a broad definition. Bridging the gap between the “what is” and the “how to” of resilience requires a clear definition of the concept. Clarifying resilience is necessary to develop recommendations that address the “how to” of resilience in the homeland security enterprise. The introduction and application of the concept to the practitioner requires a specific definition. Based upon the findings of this research, the following definition is offered as a means of clarifying the concept of resilience in the context of homeland security.

### **1. Resilience Is a Process of Adaptability Based on a Synthesis of Complexity, Interaction and Experience**

This research concludes that resilience is a process of adaptability based on a synthesis of complexity, interaction and experience. The development of this definition is based on the following conclusions obtained through this research.

Resilience within the context of homeland security is the following.

- A process of adaptability experienced over a lifespan
- A complex adaptive system of systems that includes both known and unknown variables
- Experienced and demonstrated in different means dependent upon the stressor, the system, and the environmental conditions at the time
- A vision of the homeland security enterprise based upon the adaptive capacities of government and the public

### **2. Resilience Is a Process of Adaptability**

Resilience is a process of adaptability influenced by a number of factors. The concept of resilience is a continual process of adaptation to adversity and is not measurable against a standard set of criteria or time. Resilience is understood as a vision of the homeland security enterprise that continues to be shaped by the shared experiences of individuals, communities, and the nation. The existence of resilience in the American

enterprise pre-dates the application of the term to the homeland security enterprise and should not be framed as a new concept of the homeland security enterprise.

### **3. Resilience Is a Complex Adaptive System of Systems (CASoS)**

In Chapter IV, the concept of resilience is evaluated against the requirements of a CASoS. The result of this evaluation determined that the concept of resilience exists as a CASoS. The theory of CASoS is approached from an academic perspective. Minimal practitioner level training exists in the concept of CASoS and should be introduced to local first responders and communities as a means of building adaptive capacity within their community. Important to the discussion of resilience is the development of local capabilities through an understanding of the complexities of relationships between systems belonging to a CASoS. Additional research is needed to map or diagram the complexities inferred in this thesis.

Resilience is a complex adaptive system of systems (CASoS) that includes both known and unknown variables. The proposed definition of resilience is based on the application of the concept in the context of homeland security. The homeland security enterprise is a complex adaptive environment. Initiatives, such as THIRA identify the potential threats and hazards of a jurisdiction. Tools, such as the State Preparedness Report and Core Capabilities determine a jurisdiction's level of preparedness based on an established set of criteria deemed necessary to prevent, respond, recover, or mitigate perceived threats. The THIRA and SPR aid in the identification of known variables of resilience. Any number of unknown variables creates the complexity of resilience. The prior experiences and interactions of an individual or community create unknown variables. How will individuals or communities respond to adversity? How have the prior experiences and interactions of an individual or community influenced the resilience of the system?

### **4. Resilience Is Experienced and Demonstrated in Different Ways**

Resilience is dependent upon the interaction between the individual, the stressor, and existing environmental conditions. The resilience of communities cannot be used as benchmarks for other communities impacted by the same event or even a similar type of

event. The resilience discourse should consider that for resilience to exist, a system must be exposed to some level of stress or adversity. The manner in which the community responds to and adapts to the stressor or adversity depends on the prior experiences of the community. Future resilience approaches should consider the influence of historical experiences and prior adaptations. As an example, Hurricanes Katrina and Rita impacted numerous communities along the Gulf Coast of the United States in 2005. In January 2013, U.S. Senator Harry Reid compared Hurricane Sandy to Hurricane Katrina. His comments indicated that Hurricane Sandy was much worse than Hurricane Katrina.<sup>163</sup> In the days following these comments, Senator Reid offered an apology to the survivors of Hurricane Katrina. This example demonstrates a tendency to benchmark disasters against prior events. The resilience of each community impacted by any of the previously mentioned hurricanes was demonstrated differently and based on a variety of factors that included the interactions, the experiences, and the particulars of the adversity.

## **5. Resilience Is a Vision of the Homeland Security Enterprise**

The concept of resilience establishes a vision for the homeland security enterprise of the United States. Achieving this vision requires a homeland security approach to build and sustain the adaptive capacities of the government and the public. The sustainment or enhancement of resilience is based upon the establishment of programs and initiatives promoting adaptive capacities. The adaptive capacities of local and state governments should be enhanced to influence the resilience of individuals and communities. Accomplishing this task requires the enterprise to recognize the importance of foresight, adaptation, interaction, and experience.

## **6. Evaluating the Conclusion**

The research methodology for this research is based on Ball's Pragmatic Evaluation Criteria (Table 1). The following paragraphs offer evidence supporting the development of the above definition of resilience in the context of homeland security.

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<sup>163</sup> Bruce Alpert, "Reid Says Hurricane Katrina was 'Nothing in Comparison' to Sandy," *The Times-Picayune*, January 7, 2013, [http://www.nola.com/politics/index.ssf/2013/01/reid\\_says\\_hurricane\\_katrina\\_wa.htm](http://www.nola.com/politics/index.ssf/2013/01/reid_says_hurricane_katrina_wa.htm).



The role of adaptation is mentioned in the previous chapters and contributes to clarifying the concept of resilience in a variety of contexts. The process of synthesizing existing research on resilience from a variety of contexts contributes to the development of this definition. The relationship between complexity and resilience is common to all sources used in this research. Finally, it was determined that experience contributes to and influences the concept of resilience through the interactions of an individual, community, system, or nation.

The context for this thesis magnifies the focus from a broad context to a specific context of resilience as a complex adaptive system of systems of the homeland security enterprise. Resilience exists in each of the domains of the homeland security enterprise. The homeland security enterprise of the United States is complex and is comprised of various domains and dependent systems. The relevance of the proposed definition offers an approach to understanding the vision of resilience as a national preparedness goal of the United States.

Any number of disagreements with the proposed value of the above definition of resilience exists in the context of homeland security. Palin provides three potential threats to the proposed definition of resilience in the context of homeland security. Those threats include an acceptance of reality, having a purpose, and an ability to improvise.<sup>164</sup> Disagreement based on the acceptance of reality suggests that a definition exists. The existing definition of resilience is broad and based on a variety of contexts rather than a specific homeland security context. Disagreement based on having a purpose suggests that the clarification of resilience does not add purpose to the homeland security enterprise. The proposed definition of resilience adds clarity to the concept and provides purpose to the concept as a vision of the homeland security enterprise of the United States. Disagreement based on an ability to improvise suggests that clarifying resilience adds specificity to the concept and diminishes the ability to innovate. The proposed

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<sup>164</sup> Philip J. Palin, email message to the author, February 22, 2013.

definition of resilience places emphasis on the function of adaptation and encourages the use of improvisation at the local and state levels of government as a means of influencing resilience.

According to Ball, the coherence of the proposal is determined by evaluating the policy argument against the three prior criteria. In any context, resilience is the ability of a system to adapt to adversity. The ability to adapt is based upon recognizing and understanding the complexities and systems affected by the adversity. Adaptation to adversity is influenced by the prior experiences and interaction of the system. The proposed definition of resilience is relevant to the complex environment of the homeland security enterprise. Disagreements will occur with the proposed definition of resilience. However, the proposed definition offers a sense of realism, purpose, and improvisation to the process of resilience in the context of the homeland security enterprise. Although these disagreements exist, the proposed definition offers clarity to future discussions regarding resilience in the context of homeland security.

Maintaining focus requires continual modifications to the clarity of an object. Although this research adds clarity to the concept of resilience, maintaining the focus of the homeland security practitioner's vision of resilience requires additional research and exploration.

### **C. OPPORTUNITIES FOR FUTURE RESEARCH**

This research project excluded several areas of future research related to this topic. One area excluded from this research is a comparative analysis of policy in each of the common domains of resilience found in the homeland security enterprise of the United States. Research conducted as part of this thesis did recognize the domains of physical and social resilience as contributor to a complex adaptive system of systems, but did not explore these relationships in greater detail. Another area excluded during this journey was an exploration of the relationship between a concept of Whole Community and resilience during adversity. Minimal research exists to describe how the relationships between these partners behave within a complex adaptive system of systems. Future

research conducted in the areas of resilience and homeland security should frame the discourse properly by using these recommendations and evaluation criteria.

Recommendations for further research regarding the concept of resilience in the homeland security context will influence the future. However, a present need exists to clarify the present day vision of resilience. This thesis recommends the development of a sketch of resilience to clarify the homeland security practitioner's understanding of the concept. The final step in clarifying this concept is the development of a sketch of resilience for the homeland security practitioner.

#### **D. THE SKETCH OF RESILIENCE**

A sketch describes an object or issue and is depicted as a drawing or text. For purposes of this thesis, the sketch of resilience is a narrative. The narrative clarifies the concept of resilience in the context of homeland security. The sketch of resilience contributes to the following sections of this thesis and offers a frame of reference for the development of future homeland security policies. The narrative is not final; future research and the application of the recommendations of this thesis will influence modifications to the product.

#### **THE RESILIENCE NARRATIVE**

*The history of the United States of America contains numerous examples of citizens and communities demonstrating resilience. Throughout the history of this nation, resilience has existed as a continual process of adaptation influenced by a variety of man made, natural, and economic adversities. These adversities have ranged from isolated events to global conflict. Resilience has and continues to exist in this nation.*

*Resilience is a vision of the homeland security enterprise of the United States that consists of a process of adaptation based upon a synthesis of complexity and experience. The concept of adaptation based upon complexity and experience is not new and has been demonstrated from the first explorer to set foot upon the soils of America through the most recent newborn child born in this nation. Resilience is a foundational concept of the homeland security enterprise.*

*The concept of national resilience is a goal of the homeland security enterprise of the United States. Prior to the establishment of the homeland*

*security enterprise, resilience described the purpose of traditional emergency management mitigation projects. In the early years of the homeland security enterprise, the term resilience was used in the context of critical infrastructure protection. Critical infrastructure systems were to be designed or enhanced to withstand significant pressures and rebound from stress. In this context, resilience was observed more from an engineering perspective rather than a social perspective. The need to analyze physical systems for vulnerabilities gave rise to studies in self-organized criticality and preparing for low probability-high consequence events commonly referred to as a Black Swan.<sup>165</sup> The concept of resilience adds purpose to the evolving enterprise known as homeland security.*

*Understanding resilience requires a microscopic view of today, and a telescopic view of the future. Existing homeland security policies of the United States offer a high-level view of resilience. Local and state governments of the United States have the ability to influence resilience through strengthening their capabilities to adapt to adversity. Strengthening this ability depends on the interactions of government, the private sector, communities and the citizen. This perspective combined with a retrospective view of past adversities strengthens the foresight capability of the community. Resilience adds to the development of a vision of the homeland security enterprise.*

*A significant shift in homeland security policy has occurred since the issuance of the National Security Strategy and the Quadrennial Homeland Security Review. These two documents elevated the use of the term resilience to a goal of the homeland security enterprise. Thus, propelling the term into the evolving narrative of the enterprise. The emphasis placed on resilience within the enterprise shifted from a context of critical infrastructure to a broader context of resilience of the whole. The concept of resilience contributes to the evolution of the homeland security enterprise.*

*Resilience has become a “buzz word” of the enterprise. The frequency of the use of the term resilience continues to increase and has migrated from the vernacular of public policy to the vocabulary of the general populace. Resilience is not only used to describe the response and recovery of communities impacted by adversity, but is also used to describe sporting teams who come from behind to win a game. Resilience is about overcoming adversity.*

*Resilience is an approach to navigating through the complexities of the homeland security enterprise of the United States. Foresight, adaptability, interaction and experience will influence the practitioner’s ability to*

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<sup>165</sup> Taleb, *The Black Swan: The Impact of the Highly Improbable*, 366.

*navigate through the enterprise. The practitioner should possess the ability to identify future threats and hazards to their jurisdiction. The practitioner should possess the ability to critically think through and adapt to emerging or active threats to their jurisdiction. The ability to operate in this environment will require the practitioner to consider the influences of their interactions within the jurisdiction and their prior experiences. Homeland security is no longer just about prevention and response. Homeland security has evolved into an approach to a resilient and secure nation influenced by adaptation, complexity, interaction, and experience.*

The Community Resilience Task Force (Table 5) and the Strategic Foresight Initiative (Table 7) introduce the concept of resilience into the homeland security enterprise. The insight offered by the CRTF is applicable to the development of training programs to introduce the concept of resilience to the homeland security practitioner. The CRTF recommends the building of a shared understanding of the shared responsibilities of the enterprise, building a coherent and synergistic campaign to strengthen and sustain national resilience, organize for effective execution, build the knowledge and talent base for resilience, and align federal grant programs to promote and enable resilience initiatives.<sup>166</sup> The SFI identifies the future needs of the enterprise as a knowledge base to identify essential capabilities; develop innovative models and tools, and the development of dynamic partnerships.<sup>167</sup> The recommendations provided by these two separate documents agree with the conclusion of this thesis that resilience in the context of homeland security is influenced by foresight, adaptation, interaction, and experience. The introduction of the concept to the homeland security practitioner should consider these recommendations.

#### **E. INTRODUCING RESILIENCE THROUGH A TRANSFER OF ACADEMIC RESEARCH TO PRACTITIONER KNOWLEDGE**

The prior sections of this chapter answer the “what is” requirement necessary to clarify the role of resilience in the context of homeland security. The following sections bridge the gap between the “what is” and the “how to” requirement of this research. A

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<sup>166</sup> President’s Homeland Security Advisory Council (U.S.), Community Resilience Task Force, *Community Resilience Task Force Recommendations*, 59.

<sup>167</sup> United States. Federal Emergency Management Agency, *Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty*.

significant portion of the existing literature on resilience contributes to the academic knowledge base. The intent of this thesis is not only to contribute to the knowledge base of the academic community, but also to add to the practitioner knowledge base. The first step clarifies the concept. The second step introduces the concept to the practitioner. The third step applies the concept to the homeland security practitioner.

Clarifying resilience from an academic perspective is only one part to clarifying resilience in the context of homeland security. The majority of information regarding the application of resilience in the homeland security context currently resides in the academic realm of the enterprise. Strengthening resilience requires that homeland security practitioners and academics clearly understand the concept and its application to the enterprise. The SFI introduces the term foresight capability as a means of forecasting the future. Psychology-based research suggests that the adaptive capacity of the individual influences resilience. This thesis concludes that resilience is viewed as a complex adaptive system of systems. Adaptation provides a means to navigate through the complexities of resilience and the homeland security enterprise. However, the evolving homeland security narrative and existing training have yet to include these terms.

Introducing the concept of resilience as a vision of homeland security based on a process of adaptability influenced by a synthesis of complexity, interaction and experience is accomplished through the application of the resilience narrative and the development of homeland security practitioner training. Introducing the resilience narrative is important to understanding the concept. This thesis offers several recommendations to introduce the issue. Table 8 offers a crosswalk between the academic conclusions of this research and the potential application of those conclusions to the homeland security practitioner.

Table 8. Academic to Practitioner Cross Walk

Academic Based Conclusions	Application to the Practitioner
Resilience is a process of adaptability experienced over a life span	<ul style="list-style-type: none"> <li>• Resilience is influenced after every major or minor event.</li> <li>• The conduct of after action reviews, the production of improvement plans, the procurement of equipment and technologies to improve response efforts above the prior event are all processes to improve the enterprise.</li> <li>• Resilience is experienced and demonstrated in different means dependent upon the stressor, the system, and the environmental conditions at the time.</li> <li>• No one standard image of resilience exists.</li> <li>• Resilience has to begin and occur at the lowest level of a system.</li> <li>• Resilience is not a benchmark.</li> </ul>
Resilience is a complex adaptive system of systems that includes both known and unknown variables	<ul style="list-style-type: none"> <li>• Resilience is a process of interaction between the community and government</li> <li>• Resilience is a process of identifying the relationships between systems of a community.</li> <li>• Resilience is a process of understanding capabilities.</li> </ul>

Sroufe outlines five implications to describe resilience. The transfer of these implications to a homeland security context offers a guide to clarifying resilience to the homeland security practitioner. (Table 9)<sup>168</sup>

<sup>168</sup> United States. Federal Emergency Management Agency, *Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty*, 138.

Table 9. Sroufe's Implications of Resilience

<b>Sroufe's Implications of Resilience</b>	<b>Applicability to the Homeland Security Enterprise</b>
Resilience is a product of development over time	<ul style="list-style-type: none"> <li>• Resilience is constantly being enhanced within the United States</li> <li>• A significant number of disasters and complex historical events have and continue to shape the resilience of the United States.</li> </ul>
Multiple pathways to similar locations manifest into one outcome	<ul style="list-style-type: none"> <li>• No boilerplate or one size fits all template to resilience exists.</li> </ul>
Different outcomes of the same pathway	<ul style="list-style-type: none"> <li>• Disasters, such as hurricanes Katrina and Rita, have demonstrated that the same pathway may produce differing results. Within the State of Louisiana, various coastal communities impacted by these storms recovered quicker than the city of New Orleans.</li> </ul>
Change is possible at many points	<ul style="list-style-type: none"> <li>• Viewing resilience through the lenses of complex adaptive systems of systems may also influence change.</li> <li>• Minor system changes within any linked system may result in changes to the life span of resilience.</li> </ul>
Change is constrained by prior adaptations	<ul style="list-style-type: none"> <li>• Along the timeline of the American Enterprise and the homeland security enterprise change is constant.</li> <li>• Constant changes within policy and strategies influence the nation's ability to adapt to adversity.</li> </ul>

## **F. POTENTIAL MODELS OF RESILIENCE BASED COURSES FOR THE PRACTITIONER**

A review of FEMA's Emergency Management Institute's Catalog of Training Programs determines the existence of minimal resilience-based training. A possible reason is a lack of clarity in understanding the role of resilience within the homeland security context. Several options to increase the resilience knowledge base of the



homeland security practitioner do exist. The first option is the development of an online course to introduce and clarify resilience in the context of homeland security. The second option is the development and introduction of a resilience module into existing training programs sponsored by FEMA and training partners, such as the National Domestic Preparedness Consortium. The third option is the development of an on-site training program available to local jurisdictions. The proposed series of resilience training will broaden the knowledge base of the practitioner and aid in the development of a resilience approach for the jurisdiction's homeland security program. Resilience 101 is an introductory course for the individual. The inclusion of a resilience module into existing homeland security training programs broadens the knowledge base from a basic level to a practitioner level. The multi-day course of instruction broadens the knowledge base from the practitioner level to a community level.

#### **1. Resilience 101-Online Introduction to Resilience**

The Resilience 101 course provides a basic level of resilience training and offers a foundation for additional resilience courses. The core learning objectives of this course are as follows.

- Obtain knowledge in the resilience approach of homeland security
- Obtain knowledge into the relevant federal policies and initiatives that aid in the framing of the resilience approach
- Introduce the concepts of foresight capability and adaptive capacity as tools of resilience
- Demonstrate an understanding of connecting the dots of homeland security to develop a sketch of resilience

The Resilience 101 course builds upon the recommendations of the CRTF (Table 5). The course aids in the building of a shared understanding of the shared responsibilities of the enterprise regarding this concept of resilience. The Resilience 101 course would be an Independent Study course and provided through the Emergency Management Institute (EMI) online training program. The following elements of resilience in the context of homeland security are introduced to the homeland security practitioner through this proposed course.

**a.      *Presidential Policy Directive 8 The National Security Strategy***

The use of PPD-8 introduces the concept of resilience as a goal of the homeland security enterprise as well as discusses the national frameworks established as by the directive. The “Learning Check” for this module is a series of questions related to the five mission areas identified in PPD-8.

**b.      *Threats Hazards Identification and Risk Assessment (THIRA)***

This module introduces the THIRA concept to the homeland security practitioner. As a result of this module, the homeland security practitioner is exposed to key terms necessary to participate in the development of a jurisdictional THIRA. The “Learning Check” for this module requires the participant to apply key terms contained within the THIRA.

**c.      *Core Capabilities***

This module introduces the concepts of the core capabilities to the homeland security practitioner. As a result of this module, the homeland security practitioner is able to understand the application of the core capabilities to enhance the resilience of the nation. Although this module introduces the core capabilities in the five mission areas required by PPD-8, the module focuses on the application of the capability to the enterprise rather than the mission area. The “Learning Check” for this module requires the participant to select appropriate core capabilities for a specific scenario. As an example, the participant would be given a hazardous materials scenario and asked to identify relevant core capabilities.

**d.      *The Resilience Narrative of the Homeland Security Enterprise***

The Resilience Narrative introduces resilience as a complex issue of the homeland security enterprise. Rather than focus on resilience in the context of any one specific domain of the homeland security enterprise, the narrative introduces the concept as an existing process of American society. This module introduces resilience as a process of adaptation based on a synthesis of complexity, interaction and resilience. The

“Learning Check” for this module requires the participant to identify relevant historical events that have influenced both the experiences and homeland security policies of the United States.

## **2. Incorporation of Resilience Training into Existing Courses**

The introduction of resilience modules into existing training courses builds upon the basic level learning objectives of the Resilience 101 course. In addition to the prior recommendations of the CRTF contained in the Resilience 101 course, the development of resilience modules into existing homeland security training programs would implement the CRTF’s recommendation of organizing for effective execution. In this level of training, the practitioner is able to understand and effectively execute their mission in support of resilience. The homeland security practitioner must not only possess a basic knowledge level of resilience, but they must also possess an understanding of how their respective discipline influences the resilience of the nation. The SFI will be introduced into various modules of these onsite or instructor led homeland security courses. The practitioner applies the ability to develop a foresight capability by identifying essential core capabilities specific to the course topic, identifying innovative models and tools to support these core capabilities, and the development of dynamic partnerships as a base to understanding the functions of interaction and experience. Accomplishing this recommendation requires revisions to a number of homeland security courses provided by DHS, FEMA EMI, the National Domestic Preparedness Consortium and others. Although the introduction of this module requires modifications to existing training programs, the emphasis placed on resilience as a vision of the homeland security enterprise of the United States requires that this concept be introduced as a core module of all homeland security-based training programs.

As an example, an Agro-Terrorism course would emphasize the significance of America’s agricultural community to the overall resilience of the nation. Class participants are required to demonstrate the ability to apply foresight to the development of adaptive capacities and the identification of prior experiences and interactions that influence the resilience of the America’s agricultural community. The introduction of a

resilience module into an Incident Command System course might prove to be more difficult than the prior example. However, the concepts of foresight, adaptation, interaction, and experience are applicable to the context of an Incident Command System (ICS) course.

### **3. Integrated Resilience Training Course**

The Integrated Resilience Training Course (IRTC) is an advanced level of training that builds upon the core learning objectives established in the online course. The IRTC course is a multi-day program of instruction held in a requesting jurisdiction. The delivery of the training program to local jurisdictions allows for the alteration of the course to meet the specific needs of the community. The purpose of the IRTC course is to approach resilience from a community perspective rather than from the perspective of an individual or practitioner. This course incorporates the prior recommendations of the CRTF and SFI and accomplishes the intent of the CRTF by addressing the recommendation to build the knowledge and talent base for resilience. The delivery of the IRTC course at the local level of government promotes a Whole Community approach to resilience. The IRTC builds upon the learning objectives of prior courses and provides opportunities for the practitioner to experiment with existing products such as THIRA. The outcome of the IRTC is the development of a strategic homeland security approach for the community that connects the dots between existing systems of the community.

#### **Day One: Introduction to Resilience in the Context of the Homeland Security**

**Purpose:** The purpose of day one is the introduction of resilience as a process of adaptation based on a synthesis of complexity, interaction, and experience. Participants are introduced to the various federal documents that influence the homeland security enterprise.

**Resources:** Day one utilizes and expands upon the resource documents identified in the Resilience 101 Course.

**Outcomes:** Through the use of lecture, facilitated discussions, and group work the participants modify the Resilience Narrative based upon their own jurisdiction. The outcome is a narrative describing the adaptability, foresight, interaction, and experiences of the jurisdiction.

## Day Two: Introduction and Development of a Jurisdictional THIRA

**Purpose:** Day two introduces the THIRA concept to participants. The introduction and application of the tool expands the knowledge base of participants.

**Resources:** Comprehensive Preparedness Guide 201-THIRA

**Outcomes:** At the conclusion of day two, participants have expanded their knowledge base through the development of a THIRA document for the jurisdiction. The development of this document demonstrates knowledge in the application of key terms associated with THIRA and an understanding of the linkages between the process and the jurisdictional resilience narrative.

## Day Three: Introduction and Application of Core Capabilities

**Purpose:** Introduces and applies core capabilities to the jurisdictional THIRA. Participants will identify past, present and future capacities required in their jurisdiction.

**Resources:** Jurisdictional Resilience Narrative, Jurisdictional THIRA, FEMA Core Capabilities

**Outcomes:** At the conclusion of day three, participants have expanded their knowledge of core capabilities. Through facilitated discussions and group work, the participants have identified the necessary core capabilities to sustain or develop a process of adaptation based on a synthesis of complexity, interaction and experience.

## Day Four: Foresight and Adaptation

**Purpose:** Day four serves as a capstone for the program. The knowledge base of participants is expanded through the development of a jurisdictional resilience narrative, jurisdictional THIRA, and jurisdictional core capabilities inventory. The expansion of knowledge contributes to the development of a foresight and adaptation statement for the jurisdiction. The foresight and adaptation statement outlines the intent and priorities of the jurisdiction to sustain or enhance their resilience.

**Resources:** Work products of the three previous days

**Outcomes:** The development of a homeland security resilience strategy for the jurisdiction. The participant develops a skill set to connect the dots of resilience as a means to map and understand the complexities of their jurisdiction.

The intent of this chapter is the clarification, introduction, and application of the concept of resilience in the context of homeland security. In clarifying the concept, resilience is described as a process of adaptability based upon a synthesis of complexity, interaction, and experience. The introduction of resilience to the homeland security practitioner through training transfers academic knowledge to practitioner understanding. Applying the concept of resilience influences the practitioner's understanding of not only resilience, but the homeland security enterprise of the United States.

## **G. CONNECTING THE DOTS**

Previously in this chapter, the Resilience Narrative is offered as a sketch of resilience. The intent of the narrative is to offer a means to clarify and introduce the concept of resilience to the homeland security practitioner. The narrative purposely excluded the relationships and dependencies between the numerous systems of the homeland security enterprise. This thesis acknowledges the existence of domains within the enterprise that exist at the individual or community level, the private sector, and government levels of American society.

This thesis suggests that the homeland security enterprise of the United States is best described as a “connect the dots” sheet of a child's activity book. For purposes of this analogy, each system of the enterprise is represented by a dot on the page. The following examples are a representative sample of potential dots on the homeland security “activity page.” The theoretical dots represent food defense, cyber security, biological terrorism, chemical terrorism, radiological terrorism, natural disasters, PPD-8, the National Preparedness Goal, the National Infrastructure Protection Plan, FEMA EMI, public health preparedness grants, homeland security preparedness grants, emergency management preparedness grants, Urban Area Security Initiatives, hazard mitigation grants, hazard mitigation planning, disaster assistance, infrastructure protection, security clearances, agro terrorism, recovery, THIRA, state government, local government, tribal authorities, agencies of the federal government, the community, and the State Preparedness Report. Resilience is mentioned in many of these activities. However, current conversations on resilience in each of these activities only relate to the specific

topic. Connecting the dots of resilience produces a drawn sketch to bring final focus to the concept of resilience in the context of homeland security.

Ball indicated that a valid policy argument is feasible and valuable.<sup>169</sup> The development of a drawn resilience sketch through connecting the dots between existing programs and initiatives of homeland security meets both of these criteria. The GAO, Congressional Research Service and numerous academics have researched the effectiveness of government programs developed in the name of homeland security. Several of these reports are cited in this research. In reviewing the cited reports, it was noticed that although a significant amount of literature exists, minimal research connects the dots of the homeland security enterprise. Additional data obtained from cited reports should be collected and analyzed to develop the dots of the homeland security “activity sheet.”

The value to identifying and connecting the dots is gained by providing the practitioner the ability to not only view a drawn sketch of resilience, but to also identify the numerous federal programs developed in the name of homeland security. Connecting the dots influences the administration of federal assistance to state and local jurisdictions to support preparedness efforts. The relevance of future homeland security policies, initiatives, and programs should be evaluated against their contribution to the overall resilience of the nation. The final day of the proposed Integrated Resilience Training Program requires the practitioner and jurisdiction to diagram the various systems necessary to support their foresight and adaptation strategy. Connecting the dots of resilience at any level of government in the United States strengthens the concept of resilience as a process of adaptation based upon a synthesis of complexity, interaction, and experience to define and clarify the complex environment known as homeland security.

## **H. APPLICATION TO THE HOMELAND SECURITY ENTERPRISE**

The primary research question of this thesis is to determine what benefits or contributions to the homeland security enterprise are obtained through the clarification of

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<sup>169</sup> Ball, “A Pragmatic Framework for the Evaluation of Policy Arguments,” 3–24.

resilience. The research conducted in support of this thesis includes an extensive review of literature from a wide variety of subject areas. In addition to this review of literature, a number of personal conversations and discussions were conducted during this research and provided valuable background information to this research. Several analogies of resilience were identified during these conversations including a comparison of resilience to the wind. The wind is invisible, but an individual can feel and experience the effects of the wind. In contrast, other conversations suggested that resilience simply exists. Thus, it is not necessary to clarify the concept of resilience in the context of homeland security. These analogies and statements define a need to clarify, introduce, and apply this concept to the homeland security practitioner.

Resilience is a vision of the homeland security enterprise of the United States that is approached through a process of adaptability based on a synthesis of complexity, interaction, and experience. The approach involves all domains and stakeholders of the enterprise and offers the opportunity to clarify the homeland security enterprise of the United States.

This thesis concludes with a final thought on the concept of resilience in the context of homeland security. Resilience is a vision of the enterprise. The clarification, introduction, and application of the proposed definition of resilience offer the homeland security practitioner a way to navigate and explore the complexities of the homeland security of the enterprise.

The need to explore has driven technological advancements in navigational aids for centuries. These advancements have benefited the exploration of the New World by European explorers, the exploration of the sea, and the exploration of space. Improvements to navigational aids build upon the original concepts of the compass. The exploration of the homeland security enterprise at the academic and practitioner level requires a directional heading. The concept of resilience recommended by this thesis establishes a directional heading for the homeland security practitioner.



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